BY ORDER OF THE COMMANDER
14TH FLYING TRAINING WING (AETC)

COLUMBUS AIR FORCE BASE
INSTRUCTION 15-101

30 OCTOBER 2013

Weather

WEATHER SUPPORT TO COLUMBUS AIR FORCE BASE

COMPLIANCE WITH THIS INSTRUCTION IS MANDATORY

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SUMMARY OF CHANGES

This document is substantially revised and must be completely reviewed. The Mission Execution Forecast (MEF) is now referred to as the Mission Weather Product (MWP). Training will now be conducted IAW AFMAN 15-127, *Air Force Weather Qualification Training.* Weather Flight leadership will no longer schedule personnel around airfield hours, but will schedule forecasters around local flying hours to support mission requirements. Table 2.4. 14 OSS/OSW Duty Priorities. Table 2.1. has been revised to include new Watch and Warning criteria and wording IAW AFMAN 15-129V1, *Air and Space Weather Operations – Characterization.* Figure 2.1. RM Matrix for Severe Weather Action Procedures, has been revised regarding decision-making

processes to activate the Severe Weather Action Team (SWAT). Table 2.2. Weather Flight Contact Information, has been revised to reflect correct duty contact information for the Weather Flight and its members. Paragraph 2.4.1. has been revised to replace "the weather station is located in the Airfield Management building" with "the Weather Flight is located in the Base operations building". Paragraph 2.5. has been revised to replace all references to the OPUP to GRLevel products (GR2Analyst and GRLevel3). Section 2.6. has been revised to remove NTFS completely from the wording of this document, as it has been completely replaced by the Joint Environmental Toolkit (JET). Paragraph 3.1.2. has been revised to replace references to the Automatic Meteorological System with AMOS. Paragraph 3.1.3. has been revised to include that Airfield Services personnel will employ a Basic Weather Watch when visibility is 3 miles or less, ensuring accurate reporting of all airfield visibility minimums. 3.2.2.1. Whenever ceiling and visibility are determined to be increasing above, equal to, or less than, 5,000 feet and 5 miles, respectively, WF personnel will be prepared to augment the automated sensors to ensure accurate observations are being transmitted. The remark "AO2A" will be added to any observations which are augmented by a trained forecaster. 3.3.3. PIREPs will be solicited from aircrews in flight during local flying hours, and all PIREPs received that impact 26 OWS products will be entered into JET as a part of the eyes-forward process. In addition, PIREPS and SIGMETS will be incorporated into the MWP creation process. Table 3.1. SPECI criteria for visibility, ceilings, and RVR have been updated to reflect the most up to date criteria as dictated by local FLIP guidance and criteria established in this instruction. Section 3.6. has been added to cover Augmentation (Back-up and Supplementation) of the FMQ-19. 3.6.12. Updated to outline the supplementation and back-up of sensor data as well as the conditions in which Weather Flight personnel will be called upon to supplement or back-up the specified data. 4.1. AFW-WEBS has replaced JAAWIN. 4.2. Daily observations are retained in the Weather Flight for 3 months. Official requests from off-base agencies should be coordinated through 14 FTW Public Affairs to flight leadership. 4.4.1. The Daily Aircraft and Maintenance (DAM) Meeting will take place every Wednesday and Friday in the Wing Conference Room. These times are subject to change based on mission requirements. 4.4. *Out-of-Station Briefings,* Upon closure of the base weather station all active briefings (any flight that has not reached its final destination) will be faxed to the 26th OWS briefing cell to be METWATCH'd. 4.4.6.1.4. Very Important Person Special Airlift Mission (VIPSAM) and USSTRATCOM (TF-294) missions are supported by the local weather flights IAW wing procedures. Contract commercial carriers provide for their own weather support. 4.5. The Mission Execution Forecast Process (MEFP) is now an 8-step process, and has been revised. 4.5.3. If unforecast weather conditions begin to form either at the airfield or in CAFB's area of operations, forecasters will update the MWP and alert the SOF and FTS's to these changes. Figure 4.2. has been replaced with an updated listing of RM MISSIONWATCH Procedures. Table 4.2. *TAF Amendment Criteria*, has been revised to add Category E to Ceiling and Visibility Limits and to add Altimeter Setting Amendment Criteria, IAW AFMAN 15-129V1. Section 4.6. TAF maximum and minimum temperature encoding has changed. 4.7.3.2. The Mission Weather Product will be available at least an hour and a half prior to the start of local flying to accommodate formal briefing production. 4.7.4.1. Added: Unlike the TAF, the local Mission Weather Product is tailored to the specification and amendment criteria unique to the CAFB mission and is the official forecast for CAFB. 4.7.6.2.4. Has been revised to define when a weather condition may be considered temporary. Table 4.4. MWP Amendment Criteria has been updated to be representative of local and AETC ceiling and visibility requirements. 5.1.6. Added: Gunshy Watches, Warnings and Advisories. 26 OWS

issues these warnings and AFWA issues as the backup for the 26 OWS. 5.3.1. Was added to define support to be provided to the installation commander to determine or declare a Tropical Cyclone Condition or Readiness or Hurricane Condition as outlined in CAFB Plan 555, Hurricane Evacuation Plan. Tables 5.1. and 5.2. were revised to account for the changes in Watch and Warning criteria. Figure 5.1. changed Base Operations to Airfield Management. Figure 5.3. changed to show verbal advisory notification to Airfield Management. Table 5.4. *Observed Advisory Information*, has been changed to account for the addition of Icing within the local flying area, as observed by aircraft. 9.2. Airfield Operations was added in *Support to and From the 14th Operations Group*; a representative from the Weather Flight will be provided to attend the Air Operations Board (AOB) meetings quarterly or as needed. 9.3.4. The Control Tower and/or RAPCON will pass any pertinent weather data gathered from PIREPS to the Weather Flight within 5 minutes of receipt, IAW duty priorities. 9.5.1.1. Notifications of Weather Watches, Warnings and Advisories (WWA) will be sent to AM Ops via email from the JET system. If AM Ops is not receiving these notifications, the duty forecaster will print the WWA and walk it to the AM Ops counter. 9.5.2.4. "Secondary crash network" was changed to "secondary crash net". 10.1.3.1.1. A representative from the Weather Flight will be provided to Civil Engineering/Emergency Management to coordinate requirements on an annual basis as well as provide weather data for EM to run their chosen CBRN model and provide weather products to Emergency Support Functions (ESFs) to fulfill their mission requirements in the Emergency Operations Center (EOC). CE/EM will provide a representative to provide requirements to the Weather Flight. 10.3. The Fire Department will be provided with a representative from the Weather Flight to coordinate requirements on an annual basis. The Fire Department will also be contacted via LMR radio upon the passage of a tornado or significant severe weather threat. The Fire Department will also provide a representative to provide requirements to the Weather Flight. 11. Space Shuttle support was deleted from Chapter 11 as the Weather Flight no longer provides support for the Space Program. Tables 12.13., 12.17. and 12.21. were changed to account for the changes to wording for wind speed criteria. Table 12.22. was changed based upon guidance provided by the 14th Medical Group.

Chapter 1

COLUMBUS WEATHER FLIGHT REQUIREMENTS, FUNCTIONS, AND SYSTEMS

1.1. Purpose. Effective weather support is an integral part of the 14 Flying Training Wing's (FTW) successful mission completion. The 14th Operations Support Squadron Weather Flight (OSW) is the focal point for official weather information at Columbus AFB. This instruction defines the weather flight's duties, responsibilities, and services; documents weather support requirements for all customers; illustrates the flow of information; and, serves to document the support the weather flight requires from other agencies. All services are provided in accordance with appropriate Air Force instructions and Federal guidance.

1.2. Mission. The mission of 14 OSS/OSW is to deliver timely, mission-focused weather data in support of the 14 FTW and its primary mission—to produce pilots. For 14 OSS/OSW to successfully complete its mission, the following assumptions are made.

1.2.1. Weather communications and equipment are functioning properly.

1.2.2. Weather support is aimed primarily at the steady-state training mission. Additional contingency requirements will be supported based on training, equipment, and personnel availability.

1.3. Concept of Operations.

1.3.1. 14 OSS/OSW is organized under the 14th Operations Support Squadron (OSS), 14th Operations Group (OG). 14 OSS/OSW will solicit and tailor customer support requirements, and define the dissemination of weather information within this instruction.

1.3.2. 14 OSS/OSW will accomplish the below-listed tasks.

1.3.2.1. Train, certify, and re-certify all members of the Weather Flight on all unit duty positions, as well as develop, conduct and participate in training that incorporates the 14 FTW mission and tactics.

1.3.2.2. Conduct operations consistent with Air Force Instructions and Federal guidance.

1.3.2.3. Source and develop required weather information and provide services to supported units consistent with this instruction and the Mission Execution Forecast Process (MEFP).

1.3.2.4. Perform quality assurance and operationally verify products.

1.3.2.5. Maintain the capability to deploy to main (and forward area) operating locations, as well as maintain deployment-ready personnel to support mobility commitments. Weather Flight leadership will identify pre-deployment tasks that need to be accomplished by tasked personnel to help ensure mission success in an austere environment with limited communication and weather data access, IAW AFMAN 15-127, *Air Force Weather Qualification Training.*

1.3.3. Supported units will:

1.3.3.1. Identify changes in required service and the source of this requirement (*i.e.*, instruction number or tech order) to 14 OSS/OSW.

1.3.3.2. Develop checklists detailing actions to be taken upon notification of severe weather. Checklists should be coordinated with 14 OSS/OSW and Wing Safety (14 FTW/SE) within 60 days of the initial Plan publishing, change, or revision. All units must develop detailed checklists to support the CAFB Plan 10-2, *Comprehensive Emergency Management Plan*.

1.3.3.3. Provide a representative empowered to make decisions concerning weather support for their organization for participation in annual weather support feedback.

1.3.3.4. Tasked agencies will provide support in accordance with (IAW) this instruction.

1.4. Operational Constraints.

1.4.1. Operational Constraints to Mission.

1.4.1.1. The Weather Flight is not manned for 24-hour operations. Operational hours will be determined by mission requirements. The 26th Operational Weather Squadron (OWS) continues the meteorological watch (METWATCH) after airfield hours during routine operations.

1.4.1.2. The Weather Flight will have one Mission Services NCO/Airman available during local flying hours to support mission requirements, except in a real-world evacuation. Weather personnel will not evacuate the Weather Station for exercises while the airfield is open. During a real world or exercise station evacuations, weather personnel relocate to the RAPCON conference room and continue taking observations under basic weather watch guidelines in accordance with AFMAN 15-111, *Surface Weather Observations*, paragraph 2.14.1., and Chapter 3 of this document, only if the automated sensors are not operational. The observations can be relayed via telephone during evacuation or JET (Joint Environmental Toolkit) outage to the Control Tower (x2476) alternate (x1220), SOF (x7639), RAPCON (x2016). The 26 OWS or any available Air Force Weather Station can be contacted to transmit the KCBM observation to the weather network if access to JET and to the AFW-WEBS (Air Force Weather Web Services) are unavailable.

Figure 1.1. RM Evacuation Decision Matrix.

1.4.2. Access to Information.

1.4.2.1. Release of weather information to non-DoD personnel must be coordinated through Public Affairs (14 FTW/PA). Requesters will be notified if a charge for service is expected. Any expense associated with the request must be reimbursed. The Air Force will not assume any legal, financial, or moral responsibility for services provided. Weather support to the 14 FTW mission takes precedence over support to any outside agency.

1.4.2.2. The 14 OSS/OSW is not staffed to provide non-operational weather information, except on a case-by-case basis. For non-operational purposes, agencies can use a variety of sources on the Internet. To obtain operational weather information via the LAN, Columbus AFB units and personnel can use the sources listed in Table 1.1. Using these suggested alternative information sources allows weather personnel to concentrate on mission forecasting and severe weather

resource protection duties. Contact the Weather Flight Commander or Weather Flight Chief for additional information.

Table 1.1. Primary Weather Information Sources.

Source	Access/Location	Available Weather Information
Weather Flight Website	http://columbusweb/og/weather/dashboard.html	Mission Weather Product(s) (MWP), 7-Day Planning Forecast, Current Weather, Lightning, Radar, Satellite, Hazards, Tropical Weather information, and other miscellaneous weather.
26 OWS Weather Page	https://ows.barksdale.af.mil Username/Password & CAC Enabled	Current Observation/Forecast, 5-Day Forecast, Satellite, Radar, Lightning, Heat Index, Wind Chill, Aviation Weather Hazards, Flight Level Winds, MWP, and other information critical to flying operations.
Airfield Automation System (AFAS)	Access through JET via web-based application CAC Enabled	Current Weather Sensor Information: Winds, Temperature, Dew Point, Sky Condition, and Pressure.
Training Information Management System (TIMS)	The Local Area Network (LAN) via desktop application	Mission Weather Product(s) (MWP), 7-Day Planning Forecast, Current Weather, Lightning, Radar, Satellite, Hazards, Tropical Weather information, and other miscellaneous weather.

Chapter 2

WEATHER FLIGHT/STAFF WEATHER OPERATIONS

2.1. General Information. This chapter outlines the weather services provided in support of Columbus AFB. It describes responsibilities of weather personnel, as well as Columbus AFB Weather Flight's hours of operation, and meteorological and communications equipment.

2.2. Responsibilities.

2.2.1. The Weather Flight Commander will:

2.2.1.1. Arrange for weather support required by units at Columbus AFB and outline required weather support in this document.

2.2.1.2. Review all station activities—products, procedures, directives, and scientific documents—to ensure compliance with this instruction, Air Force directives, customer requirements and sound meteorological practice.

2.2.1.3. Establish Duty Priorities IAW AFMAN 15-129 Volume 1. Below are the duty priorities 26 OWS and 14 OSS/OSW.

Table 2.1. 14 OSS/OSW Duty Priorities.

Order of Priority	Duties
1	Perform 14 FTW Emergency War Order (EWO) Taskings
2	Execute WF Evacuation
3	Respond to Aircraft/Ground Emergencies/Mishaps
4	Respond to Pilot to Metro Service (PMSV) Contacts
5	Provide Weather Information for SOF and Squadron SUPs
6	SWAP Operations
7	Issue Watches, Warnings and Advisories (WWAs)
8	Record and Disseminate Surface Weather Observations (Augment as required by local mandate)
9	Provide "Eyes Forward" / Collaborate with 26 OWS
10	Mission Execution Forecast Process—Produce and Disseminate Forecasts
11	Relay Urgent PIREPs
12	Disseminate PIREPs
13	Perform Coordinated MISSIONWATCH/METWATCH
14	Provide MWP Briefing
15	Accomplish other Routine Weather Requirements and Training
16	Accomplish Administrative Tasks

2.2.1.4. Establish the mission support requirements IAW 26 OWS Data Sheet and AFMAN 15-129 Volume 1. See below.

Table 2.2. 14 OSS/OSW Mission Support Requirements.

Requirement	Responsible Weather Unit
CAFB and Area MWP	14 OSS/OSW
Weather brief (written or verbal) (Applies to all XC flights)	14 OSS/OSW & 26 OWS (back-up)
CAFB Surface Observation	14 OSS/OSW
CAFB Resource Protection	14 OSS/OSW & 26 OWS
Terminal Aerodrome Forecast	26 OWS & 14 OSS/OSW (back-up/COOP support)
Instrument Refresher Course (IRC) brief	14 OSS/OSW
Local Weather Orientation (SOF, RAPCON, Tower) (includes certification)	14 OSS/OSW
14th Wing and Operations Group Weather Brief	14 OSS/OSW
Climatological Data	14 OSS/OSW
Special Occasion Forecasts	14 OSS/OSW
Unit Radar Committee Member	14 OSS/OSW (member) & 26 OWS (voting member)

2.2.2. The Weather Flight Chief will:

2.2.2.1. Aid the Flight Commander in the execution of weather requirements described in this instruction by writing, maintaining and implementing standard operating procedures (SOPs) and other documents IAW Air Force directives.

2.2.2.2. Supervise creation of the flight duty schedule and delivery of mission services personnel recall schedule to the 14 FTW Command Post.

2.2.2.3. Manage quality assessment (QA) and metrics programs to ensure efficient and accurate weather products.

2.3. Operating Hours. A Weather Mission Services NCO/Airman will be on duty Monday through Friday and Sunday, no later than 2 hours prior to airfield opening and first takeoffs, and will remain on duty until the end of flying. On no-fly Saturdays, Sundays with no cross country flight returns, federal holidays, and any other days when the airfield is closed, the Weather Flight will also be closed. The Weather Flight Commander or the Weather Flight Chief may extend duty hours based on mission requirements.

2.3.1. Weather Recall. When the Weather Flight is closed, 14 OSS/OSW standby Mission Services personnel and the Severe Weather Action Team (SWAT) leader are on standby for recall. The 26 OWS will monitor the weather situation and initiate a recall of standby personnel through CAFB Command Post IAW the 14 OSS/OSW/26 OWS Data Sheet. Standby mission services personnel, when recalled to the Columbus AFB weather station, will provide "Eyes Forward" support whenever 26 OWS issues a weather watch and/or warning meeting any criterion as listed in Table 2.3. Standby Mission Services personnel will call the 26 OWS and CAFB Command Post immediately upon reopening the weather station. The Weather Flight will coordinate with the CAFB Command Post to establish recall procedures.

Table 2.3. Weather Criteria for 14 OSS/OSW Standby Mission Services Personnel Recall.

Tornado	Watch* or Warning*
Severe Thunderstorms: Damaging Winds ≥ 50 knots and/or Damaging Hail ≥ ¾ inch	Watch* or Warning*
Moderate Thunderstorms: High Wind ≥ 35 knots but less than 50 knots and/or Large Hail ≥ ¼" but ¾"	Warning**
Damaging Winds: Surface winds not associated with thunderstorms ≥ 50 kts	Watch* or Warning*
Snow accumulation (any accumulation)	Warning
Blizzard	Warning*
Freezing Precipitation	Warning*
Sandstorm	Watch or Warning
Severe Weather that requires activation of the SWAT is marked with an asterisk.*	
**Standby Forecaster will only report for Moderate Thunderstorms if hail is expected. Similarly, SWAT will only be activated for Moderate Thunderstorms if the standby forecaster determines that there is a risk for hail.	

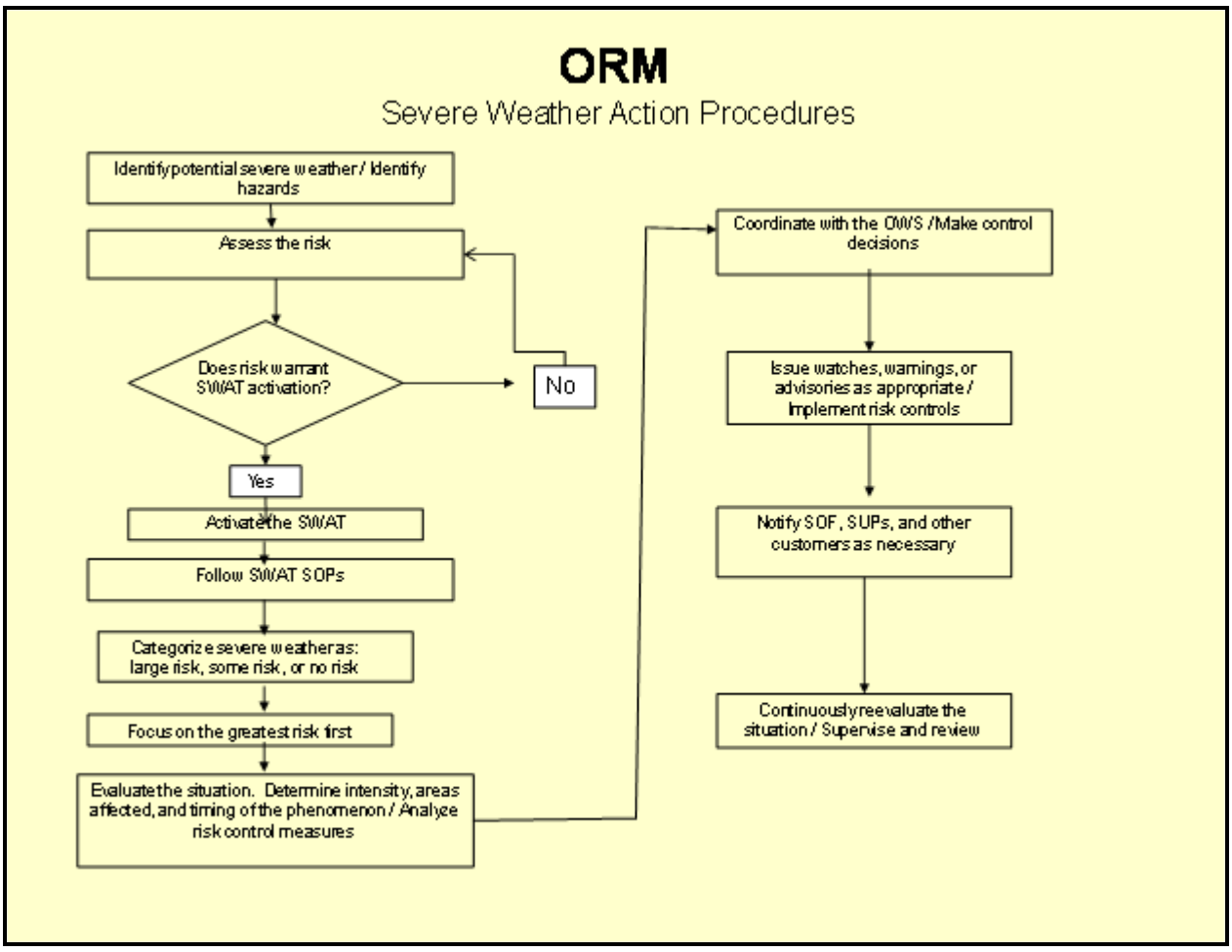
2.3.2. Severe Weather Action Procedures (SWAP). The purpose of the SWAP is to ensure weather station management (senior, experienced personnel) are notified and respond to both potential and/or actual severe weather events within Columbus's area of responsibility. 14 OSS/OSW duty Mission Services personnel or standby mission services personnel will recall the Columbus AFB Severe Weather Action Team (SWAT) when 26 OWS issues a watch or warning for severe weather, but not sooner than 4 hours before the anticipated start of the severe weather event. For the purposes of this document, severe weather is defined as the occurrence or expected occurrence the criterion listed in Table 2.4. The SWAT Leader is the final authority on decisions regarding the time and extent of the SWAT's involvement in managing the severe weather event. The SWAT Leader will coordinate the team during the severe weather event. The SWAT Leader will keep Wing leadership and 26 OWS informed of current and forecast weather conditions, ensure that all weather products are horizontally consistent, contact CAFB Command Post to provide timely OPREP-3 information, and provide forecasting assistance to the duty mission services personnel as required. Further SWAP details are provided in the applicable SOP. **Note**: Weather Operations operational support may be limited to all base/customers due to limited manning and availability. Limitations to unit support may include: Weather Operations technicians answer only telephone hotlines, shortened/cancelled weather briefings, long telephone hold periods, slower update to various MWP products, etc.

2.3.2.1. Procedures before and during Potential Severe Weather. The standby weather forecaster will be available via the SWAP phone at 662-364-2975, and will report ASAP, but no more than 30 minutes after being recalled. The weather forecaster who is on duty, or who has been recalled to duty by the Command Post, will keep the SWAT Leader informed of the potential for severe weather. They will immediately notify the SWAT Leader (30-minute recall) whenever the potential for severe weather moves within 100NM of Columbus AFB and/or is expected to affect the base within 4 hours. The

SWAT Leader and the individual on duty will discuss, analyze and assess the severe weather threat in conjunction with the 26 OWS Columbus Forecast Team by reviewing pertinent meteorological information. If the SWAT Leader, Weather Technician, and the 26 OWS determine there is a risk of severe weather, the SWAT Leader may recall additional forecasters, as needed.

2.3.2.2. Post-Event Procedures. Once the SWAT Leader, OWS technician, and the WF technician have determined the severe weather threat has passed, the SWAT Leader will ensure Weather Operations are returned to "ops normal" (ensure work area is clean, answer/return any pending phone calls, report any severe weather damage, see OPREP 3 Reporting, Chapter 7, paragraph 7.4.) before dismissing the SWAT. Any necessary changes to the SWAP will be documented in this instruction and in Weather Operations SWAP SOP.

Figure 2.1. RM Matrix for Severe Weather Action Procedures.



2.4. Location/Contact Information.

2.4.1. The Weather Flight is located in the Base Operations building (Bldg #847). The briefing counter is manned during local flying hours to brief aircrews. Since personnel resources are limited, every effort is made to provide useful and accurate flight planning information for local, route and military operating area flights via the Mission Weather

Product (MWP). For further information or clarification, weather personnel can be contacted at the following numbers.

Table 2.4. Weather Flight Contact Information.

Airfield Services Desk	(662) 434-2992 DSN 742-2992
Mission Services Desk	(662) 434-2970 DSN 742-2970
Weather Flight Chief	(662) 434-3224 DSN 742-3224
Lead Meteorological Technician	(662) 434-2973 DSN 742-2973
Deputy Flight Commander	(662) 434-1283 DSN 742-1283
Flight Commander	(662) 434-2971 DSN 742-2971
Alternate Operating Location	(662) 434-3186 DSN 742-3186
Organizational Email Address	14oss.osw.users@us.af.mil

2.4.2. During evacuations, weather personnel will relocate to the RAPCON conference room, Bldg 1805. Meteorological watch procedures are resumed to the greatest extent possible using the local area network and JET. MISSIONWATCH for MWP's should continue with no interruptions in service.

2.5. Meteorological Equipment. Weather personnel use a variety of meteorological equipment to observe and forecast weather conditions at Columbus AFB and surrounding areas.

2.5.1. GR2Analyst and GRLevel3. Radar data is collected and processed at the NEXRAD site, located at Greenwood Springs, approximately 18 nautical miles north of Columbus AFB. The Air Force owns and maintains the NEXRAD facilities. The National Weather Service (NWS) in Jackson, MS controls the radar's operating modes and chairs radar committee meetings. The Weather Flight Radar Coordinator (or alternate) is a non-voting member of the radar committee and will attend, at a minimum, semiannual meetings with the committee chairman. The 26 OWS is considered a voting member, and will also attend these meetings, if able. If unable to attend, the 14 OSS/OSW will represent 26 OWS and will coordinate with, and provide the DoD response for technical, scientific, and administrative matters brought before the URC. Weather Flight personnel use the GR2Analist and GRLevel3 to interrogate thunderstorms for indications of severe weather or tornadoes. Both of these programs are also used to verify forecast aircraft icing, low level wind shear, and turbulence. The GRLevel products will be upgraded IAW NWS and HHQ directives and will remain current with latest software and hardware updates. As a backup to GRLevel products, and to give 14 FTW Flying Squadron Supervisors and the Supervisor of Flying access to radar data, the 14 OSS/OSW supplies WeatherTAP accounts for access to radar and satellite images. Radar imagery is also available on the 26 OWS web page.

2.5.1.1. Accurate measurements of intensities and echo tops are limited to those within 124NM of Columbus AFB MS.

2.5.1.2. Since the NWS controls the antenna, WF personnel must coordinate changes to the system settings/scan strategies. This could result in a delay when requesting specific products.

2.5.2. Automatic Meteorological Observing System (AN/FMQ-19): Known as an AMOS, this system is positioned on the approach ends of the center runway. There are two systems; the primary end (13C) and the discontinuity end (31C). The sensors send the data from these

instruments to a Terminal Data Acquisition Unit (TDAU) located in building 847 that sends it to the JET server via the LAN. Any computer on a government domain can display live meteorological data, however, a CAC is required. The primary sensors are located 1,234 feet down the runway 13C and 512 feet right-of-center of runway. The equipment base is at 188 feet MSL. The discontinuity sensors are located 1,107 feet down the runway 31C and 507 feet left-of-center of runway. The equipment base is at 209 feet MSL. There are no known operational limitations to the airfield weather sensors. The instrumentation includes:

2.5.2.1. Primary (Runway 13C): Wind direction, speed, gusts and squalls (on top of a 30 foot tower mast), temperature, precipitation measuring device, ice accretion monitor, precipitation type monitor, visibility (for both the primary and discontinuity location) RLIM runway lights and runway heading (used to compute runway visual range [RVR]), ceilometers (for both the primary and the discontinuity location which measures cloud layers up to approximately 24,000 feet AGL), lightning (measures both cloud-to-ground and cloud-to-cloud within 30 miles) , ambient light, humidity (to compute dew-point), and pressure (uses 3 measuring devices).

2.5.2.2. Discontinuity (Runway 31C): Wind direction, speed, gusts and squalls (on top of a 30 foot tower mast) visibility, RLIM runway lights and runway heading (used to compute RVR).

2.5.3. Manual Observing Kit: Used during station evacuations when the weather systems cannot be reached via the LAN. Contains Kestrel 4500NV (electronic handheld wind, temperature/dew point and barometer), and other items necessary to conduct a basic meteorological watch. **Note:** If the weather flight doesn't have access to the fixed airfield weather equipment information, the wind values and pressure values will be reported as estimated.

2.5.3.1. The Kestrel 4500NV will be utilized as backup to the AN/FMQ-19 in the event that the equipment (on both runways) becomes inoperable. Inactive runway AN/FMQ-19 equipment will be used, if considered representative, if the active runway weather equipment becomes inoperative. **Note:** If weather conditions warrant the transmission of RVR and the active runway RVR equipment is not available, RVRNO will be transmitted locally.

2.6. Communications Equipment. The Weather Flight uses the following communications equipment to relay weather information to the wing and outside agencies.

2.6.1. JET. The Weather Flight and 26 OWS will use JET to disseminate observations, forecasts, watches, warnings and advisories. Computers using JET are considered MISSION CRITICAL and will not be turned off during INFOCON exercises.

2.6.2. GRLevel2Analist/GRLevel3. The GRLevel products communicate with the RDA via a dedicated line.

2.6.3. Pilot-to-Metro Service (PMSV) Radio. The frequency for the Columbus PMSV is 354.6. This radio enables weather personnel to provide weather data and receive pilot reports (PIREPs) from aircrews. The range of the PMSV is approximately 120 miles in all directions (dependent on flight altitude of the aircraft). When outside the Columbus AFB PMSV range, aircrews should call the KBHM Guard on Frequency 287.3 and request a phone patch to the Columbus AFB WF.

2.6.3.1. For short-term PMSV outages less than 48 hours, the WF will notify the Supervisor-of-Flying (SOF) and Air Traffic Control (ATC) of the outage. The WF does not have an alternate frequency, nor is there an alternate weather facility within 250 nautical miles that can monitor the 354.6 PMSV frequency.

2.6.3.2. For long-term PMSV outages over 48 hours, Airfield Management will be notified by weather personnel to annotate outage information on the local Airfield Status Board and transmitted via a Notice-to Airman (NOTAM) for aircrews to contact a nearby weather facility on a different frequency, or to contact the KBHM Guard on Frequency 287.3 and request a phone patch to the Columbus AFB telephonically at 662-434-2992.

2.6.4. Multiple line and hotline telephones. Weather information is transmitted through JET and courtesy calls are made via telephone to ensure receipt of information upon issuance of weather watches, warnings, and advisories. Aircrews desiring to contact the WF via telephone patch should call 1-800-982-4257 (Command Post), and press option 6. Dedicated hotlines are connected to the Command Post, Maintenance Operations Center, RAPCON, Air Traffic Control Tower operations, flying squadron supervisors (SUPs) and the Supervisor of Flying (SOF). Weather mission services personnel are notified of aircraft and ground emergencies via the secondary crash net controlled by the Airfield Management desk.

2.6.5. Local Area Network (LAN) and Internet. Local and Internet computer networks are essential to today's weather mission services personnel. Weather station operations are critically hampered by any network outage. Back-up procedures using the Cable One modem must ensure that current meteorological data can be obtained, tailored to customer needs, and delivered to the customer to use.

2.6.5.1. Cable Modem. The Weather Flight subscribes to a commercial cable modem service as a backup in the event of disruption/failure of the LAN to sustain the ability to send and receive critical weather data. The cable modem is only available while we are in building 847 and does not apply if relocate/evacuated to our Alternate Operating Location (AOL).

2.6.6. Hand-Held Land Mobile Radio (LMR). This radio provides direct access to the Commanders BLAZE Net. In addition, this radio provides weather personnel access to airfield SOF, vital information for flight line, and CAFB operations.

2.6.7. Bearcat Radio Scanner. This scanner provides the weather flight with local and pattern radio traffic describing limited flight operations due to weather. In addition, this scanner provides capabilities to monitor NWS Severe Weather Broadcasts over alert channels.

2.6.8. Weather equipment will be fixed in accordance with the priorities approved by 14 FTW/CC.

Chapter 3

AIRFIELD SERVICES OPERATIONS

3.1. General Information.

3.1.1. The Weather Flight takes and disseminates the official observation for Columbus AFB. Observing services will be provided during airfield operating hours and to provide "Eyes Forward" support for the 26 OWS. "Eyes Forward" support is defined as Weather Flight personnel relaying all significant, time-sensitive meteorological information to the 26 OWS.

3.1.2. The Weather Flight records observations from the AMOS sensors located at the approach ends of the center runway complex. The official observing point for augmentation (back-up and/or supplementing) of the AMOS is located at the flight line end of the sidewalk behind Bldg 847. The field of view from the observing point is unobstructed from the Northwest (320 degrees) to the Southeast (140 degrees). The view is obstructed from the Southeast to the Northwest due to flight line facilities and trees. There are adequate visibility markers from the Northwest to the Southeast up to 2 miles out. There are an inadequate number of visibility markers beyond 2 miles. Visibility markers are updated or reviewed for accuracy annually.

3.1.3. Airfield Services personnel will employ a Basic Weather Watch (when not in AUTO mode) when visibility is 3 miles or less, ensuring accurate reporting of all airfield visibility minimums. Also, Airfield Services personnel will issue Observed Warnings and Advisories, as necessary, to inform supported units of hazards.

3.2. Airfield Services Process.

3.2.1. Shift change discussions provide continuity between shifts. Weather personnel will discuss weather trends and equipment outages.

3.2.2. Weather personnel will evaluate weather conditions as dictated by AFMAN 15-111. When weather conditions worsen or improve through criteria that affect customer operations, the Weather Flight transmits the information to the customers via JET.

3.2.2.1. Whenever ceiling and visibility are determined to be increasing above, equal to, or less than, 5,000 feet and 5 miles, respectively, WF personnel will be prepared to augment the automated sensors to ensure accurate observations are being transmitted. The remark “AO2A” will be added to any observations which are augmented by a trained forecaster.

3.2.3. Quality Assessment. Weather personnel review the observations for coding errors and the results are integrated into the flight’s quality measurements.

3.3. Observation Products.

3.3.1. Record observation (METAR). This type of observation is transmitted between 55 and 59 minutes past each hour.

3.3.2. Special observation (SPECI). Observations made when conditions meet the criteria listed in paragraph 3.6. Specials disseminated locally will contain all elements. Single element specials may be made for tornadic activity and volcanic eruptions.

3.3.3. Pilot Reports (PIREPs). Weather observations made by airborne personnel and relayed to the Base Weather Station via the PMSV, air traffic control, RAPCON, the SOF, squadron supervisors via their squadron common frequencies, or other communications systems. PIREPs provide important information on conditions encountered during flight and are invaluable aides during local flying hours weather personnel will solicit and disseminate all significant and "severe" PIREPs which affect 14 FTW operations. All urgent PIREPs will be disseminated immediately first **locally**, and then longline. All PIREPs received that impact 26 OWS products will be entered into the JET system as a part of the eyes-forward process.

3.4. Weather Station Evacuations or JET Outage. During a station evacuation, all weather personnel will relocate to the Alternate Operating Location (AOL) at the RAPCON facility (conference room), in accordance with paragraph 1.4.1.2., and continue taking observations under Basic Weather Watch guidelines if the FMQ-19 is not operational or working properly. If unable to connect to the LAN, weather personnel will relay observations via telephone to Tower, RAPCON and SOF. In the event of a JET communications problem, weather personnel will transmit their observation via AFW-WEBS through the Internet. As a last resort, another weather station will be contacted via telephone and observation verbally relayed for transmission.

3.4.1. The Weather Flight will maintain SOPs on an external hard drive, which will be located in the bug-out kit and utilized in the event of a COOP which includes evacuation to the AOL. Weather Flight personnel will execute a COOP in conjunction with an AOL bug-out at least annually IAW 15-129V2.

3.5. Transmission. Weather observations are recorded and sent electronically via JET. JET records the data on AF Form 3813 for climatological purposes. The AF Form 3813 is then forwarded to the 14th Weather Squadron (14 WS), at least every 7 days, for archiving.

3.6. Augmentation.

3.6.1. Summary of Back-up of the AN/FMQ-19. Back-up is manually providing weather data and/or disseminating an AN-FMQ-19 generated observation when the primary automated method is not operational or unavailable due to individual sensor(s), system or communications failure. There is no requirement to back-up the system/sensor when the airfield is closed, unless tornadic activity is occurring or forecast to occur, then back-up and supplementing will be accomplished, as necessary. Back-up will be accomplished, during duty hours when the airfield is open, using procedures as described in AFMAN 15-111, *Surface Weather Observations,*

Table 3.1. *, Summary of Mandatory Supplementary Weather Conditions.*

3.6.2. Augmented Single Element Specials. Are authorized for tornadic activity and volcanic eruptions when a delay in reporting all elements of the SPECI would cause an immediate threat to life or property (*i.e.*, "TORNADO SW MOV NE") or for timely off-base reporting.

3.6.3. Summary of Mandatory Supplementary Weather Conditions. Supplementing is a method of manually adding meteorological information to an automated observation that is beyond the capabilities of AN/FMQ-19 to detect and/or report. The following are the mandatory weather conditions that must be supplemented:

3.6.3.1. Tornadic Activity (to include Tornado, Funnel Cloud, and Waterspout). Weather personnel will supplement the observation anytime this weather phenomena is observed to begin (first seen), are in progress, or disappear (end).

3.6.3.2. Hail is observed (during duty hours when the airfield is open) to begin (and is ¼ inch or greater in size), is in progress, or ends.

3.6.3.3. Volcanic Ash (during duty hours when the airfield is open) will be reported whenever it is observed, regardless of the visibility.

3.6.3.4. Sand Storms and/or Dust Storms are observed (during duty hours when the airfield is open) will be reported whenever the phenomenon is observed and meets the requirement for a weather warning to be issued.

3.6.3.5. Snow of any accumulation is observed, and the Warning is issued, snow depth will be reported IAW 15-111.

3.6.4. Back-up for Operationally Significant Weather. The WF will augment the AN/FMQ-19 any time a malfunction occurs and observations become unrepresentative. The WF will augment the AN/FMQ-19 when PIREP/SOF confirmed conditions are below 5,000 feet and/or less than 5 miles visibility and the AN/FMQ-19 is reporting conditions above 5,000' and/or 5 miles visibility, or vice versa. The WF will continue to augment observations until the equipment is restored to proper functionality.

3.7. Special Observing Criteria. A special observation will be taken when the following conditions are observed by the AMOS, as required by AFMAN 15-111 and local regulations, during flying operations. During non-flying hours, the AMOS is programmed to automatically transmit observations without augmentation.

3.7.1. Ceiling. The ceiling is observed to form below, decrease to less than, or if below, increases to equal or exceed the values listed in Table 3.1. (all heights are AGL):

Table 3.1. Ceiling Special Observation Criteria.

5,000 ft (13-204)	**1,000 ft** (15-111)
3,000 ft (15-111)	**800 ft** (15-111) (13-204)
2,800 ft (13-204)	**700 ft** (15-111) (FLIP)
2,500 ft (13-204)	**600 ft** (FLIP)
2,100 ft (13-204)	**500 ft** (15-111) (FLIP)
2,000 ft (15-111) (13-204)	**300 ft** (15-111) (13-204)
1,500 ft (15-111) (13-204)	**200 ft** (13-204) (FLIP)
1,100 ft (FLIP)	

3.7.2. Sky Condition. A layer of clouds or obscuring phenomena aloft is observed below the highest published instrument landing minimum 1,100 feet (including circling) applicable to the airfield, and no clouds or obscuring phenomena aloft was reported below this height in the preceding observation: 1000 feet (15-111).

3.7.3. Visibility. Prevailing visibility is observed to decrease to less than or, if below, increases to equal or exceed the values listed in Table 3.2.:

Table 3.2. Prevailing Visibility Special Observation Criteria.

5 (13-204)	**1 3/8** (FLIP)
4 (13-204)	**1 1/4** (FLIP)
3 (15-111) (13-204) (FLIP)	**1 1/8** (FLIP)
2 (15-111) (13-204) (FLIP)	**1** (15-111) (13-204) (FLIP)
1 3/4 (FLIP)	**7/8** (FLIP)
1 5/8 (FLIP)	**3/4** (13-204) (FLIP)
1 1/2 (FLIP)	**1/2** (15-111) (13-204) (FLIP)

3.7.3.1. Runway Visual Range (RVR). When prevailing visibility is first observed ≤ 1 statute mile (SM) and RVR is 6,000 feet or less, and again when prevailing visibility goes above 1 SM and RVR increases to above 6,000 feet. The highest value during the preceding 10 minutes from the designated RVR runway decrease to less than, or if below, increase to equal or exceed:

Table 3.3. RVR Special Observation Criteria.

6,000 feet (15-111) (FLIP)	**4,000 feet** (FLIP)
5,500 feet (FLIP)	**2,400 feet** (15-111) (13-204) (FLIP)
5,000 feet (15-111)	**2,000 feet** (15-111) (Precision approach critical area)
4,500 feet (FLIP)	

Note: The RVR SPECI observations will be taken, but will only be transmitted longline when the 10-minute RVR average readout capability is functioning. RVRNO will be reported when equipment is not operational.

3.7.4. Tornado or Funnel Cloud. (must be supplemented).

3.7.4.1. Is observed.

3.7.4.2. Disappears from sight or ends.

3.7.5. Thunderstorm.

3.7.5.1. Begins (a SPECI is not required to report the beginning of a new thunderstorm if one is currently reported as in progress at the station).

3.7.5.2. Ends (15 minutes after the last occurrence of criteria for a thunderstorm IAW AFMAN15-111).

3.7.6. Precipitation.

3.7.6.1. Hail ¼" or greater begins or ends.

3.7.6.2. Freezing precipitation begins, ends, or changes intensity.

3.7.6.3. Ice pellets begin, end, or change in intensity.

3.7.6.4. Any other type of precipitation begins or ends.

Note: Except for freezing rain, freezing drizzle, hail, and ice pellets, a SPECI is not required for changes in type, or the beginning and ending of one type while another is in progress.

3.7.7. Wind Shift. The wind direction changes 45 degrees or more in less than 15 minutes with sustained winds of 10 knots or more throughout the wind shift. A "gust" is defined as the maximum wind speed observed during the 10-minute observational period with a variation of 10 knots or more between peaks and lulls.

3.7.8. Squall. When squalls occur.

3.7.9. Miscellaneous.

3.7.9.1. Volcanic Ash. When first observed and until no longer observed. (must be supplemented if occurring during duty hours).

3.7.9.2. Any other meteorological situation which, in the opinion of Weather Flight personnel, is critical to the safety of aircraft operations or resource protection.

3.7.10. Resumption of Services. A SPECI is taken within 15 minutes after mission services personnel return to duty following a break in observing coverage at the unit, unless a record observation is filed as scheduled during that 15 minute period. **Note**: This applies only with the occurrence of an actual evacuation and the resumption of service from the AOL and manually taking the observations. This does not apply if resumption of service is from the AOL and the AN/FMQ-19 information is still available and operational.

3.8. AN/FMQ-19. When Weather Flight personnel suspect an out-of-tolerance or erroneous wind recording from both sensors of the AN/FMQ-19, take the below listed actions.

3.8.1. When an AN/FMQ-19 sensor is no longer working properly, the duty forecaster will report the outage to the Central Focal Point and perform back-up, inputting the corrected or missing element in the METAR/SPECI, until the equipment is operational.

3.8.1.1. The duty forecaster will maintain situational awareness of local weather conditions and the AN/FMQ-19 observations during airfield operating hours. Weather technicians will also monitor area observation and forecast products to keep abreast of changes expected to affect the CAFB AOR.

3.8.2. Airfield services personnel will inform air traffic control, including Control Tower, SOF, and RAPCON of the following:

3.8.2.1. The AN/FMQ-19 wind systems are out of service and should not be used.

3.8.2.2. To use winds from the latest official observation.

3.8.2.3. Airfield services personnel will measure and report the winds more frequently to adequately support local flying operations, as needed.

3.8.3. Once the actions listed above have been completed, Airfield services personnel will inform air traffic control, including Control Tower, SOF and RAPCON of the following:

3.8.4.1. To continue using the official observation until Weather Flight personnel are confident AN/FMQ-19 wind systems are representative, based on comparisons with an alternate means.

3.8.4.2. When the AN/FMQ-19 wind systems are restored to operational status.

3.9. Other Meteorological Situations. Any other meteorological situation which airfield services personnel feel is significant to local operations.

3.10. Observation Formats and Dissemination.

3.10.1. Observation Format Example:

Observation (Locally transmitted)

KCBM METAR 1955Z 04003KT 7 BKN045 10/ M01 ALSTG 3012 RMK A02A PA-230 DA+680 55/ ZZ

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Key

1) ICAO station identifier for Columbus AFB
2) Observation type: METAR, SPECI, or LOCAL
3) Time in ZULU (Z)
4) Winds - Direction and Speed in knots
5) Visibility in statute miles
6) Sky condition (amt of clouds and cloud heights)
7) Temperature in Celsius (°C)
8) Dew point in Celsius (°C)
9) Altimeter setting (in inches of mercury)
10) Significant Meteorological Remarks
11) Remark included in observations from units with manual augmentation; A02 is used if automated without augmentation
12) Pressure altitude in feet
13) Density altitude in feet
14) Time of the observation's dissemination in minutes past the hour
15) Initials of Airfield Services personnel responsible for the observation (if augmented through either back-up or supplementation)

Observation (Longline)

KCBM METAR 122055Z 04008G20KT 7SM FEW017 BKN029 10/M01 A3041 RMK AO2A SLP 364

1 2 3 4 5 6 7 8 9 10 11

1) ICAO station identifier for Columbus AFB
2) Observation type: METAR, SPECI, or LOCAL
3) Time in ZULU (Z)
4) Winds - Direction and Speed in knots
5) Visibility in statute miles
6) Sky condition (coverage of clouds and cloud heights)
7) Temperature in Celsius (°C)/Dew point in Celsius (°C)

8) Altimeter setting (inches of mercury)

9) Significant Meteorological Remarks

10) Indicates a manually augmented observation

11) Sea Level Pressure

3.10.2. Example of a PIREP in local dissemination format:

1	2	3	4	5	6	7
KCBM	PIREP	TIME1823	KGWO 270010	FL100	TP C130	OVCUNKN-TOP080
WXFV99	TA 03	WND 260050	TURB NEG	ICE NEG	RM	DURC
8	9	10	11	12	13	14

Key

1) Station at which the PIREP is disseminated from

2) Identifies the message as a PIREP (Prefixed with URGENT if meets requirements)

3) Time the PIREP was reported (ZULU)

4) Location of the PIREP (10 miles west of KGWO)

5) Flight level of the PIREP

6) Type of aircraft giving the PIREP

7) Sky condition (Overcast deck with unknown bases and tops at 8,000 ft MSL)

8) Weather and/or Visibility (Flight visibility in two-digits and/or weather as the variable length)

9) Identifies the two-digit temperature value at flight level in whole degrees Celsius (Negative values are prefixed with an "M" [e.g., M04])

10) Winds at flight level

11) Turbulence remark

12) Icing remark

13) Significant remarks follow

14) Example of a significant remark (DURC=During Climb)

Chapter 4

MISSION SERVICES OPERATIONS

4.1. General Information. The 14 OSS/OSW and 26 OWS develop and tailor weather products in support of the 14 FTW and its mission. Mission Services personnel analyze data collected from many sources to produce a fine scale forecast for our local area. Data sources evaluated by the Weather Flight include products from the GRLevel products, Operational Weather Squadrons, AFW-WEBS, National Weather Service and the National Oceanic and Atmospheric Administration.

4.1.1. Forecasting services not outlined in this instruction shall be coordinated in advance with the Flight Commander or Flight Chief to ensure proper manning is in place or available.

4.1.2. Questions concerning weather anomalies, support, climatology, etc., should be directed to the Flight Commander or Flight Chief during normal duty hours.

4.2. Climatology. The WF provides a wide assortment of climatological data. Climatology requests are usually filled by using station-specific operational climatic data summaries. Unit-specific requests for actual past weather and tailor-made graphic climatology are available upon request however, it may require 7 to 10 duty days to acquire the information from the Strategic Climatic Information Service (14 WS), in Asheville, NC. WF personnel will request specialized data from the 26 OWS, or AFWA, 14 WS, etc. The 14 WS collects Columbus AFB observations each day for archiving into national records, which are available to the general public. Copies of each day's observations are retained in the Weather Flight for 3 months, or as required by Air Force Instruction. This data may be used to provide specific support upon the request of a customer. Official requests from off-base agencies should be coordinated through 14 FTW Public Affairs to flight leadership.

4.3. Deployment. The Weather Flight is tasked to provide personnel for deployment. Primary and alternate personnel are trained and equipped for deployment according to the guidelines specified at Columbus AFB and the unit DOC statement.

4.4. Out-of-Station Briefings. The Weather Flight provides briefings for customers at various locations around base. Some briefings are a regular occurrence and others are arranged to fulfill needs for special events. If customers require a non-scheduled out-of-station weather brief, coordination is required with the WF Commander or WF Chief with at least 24 hours advance notice. Upon closure of the base weather station all active briefings (any flight that has not reached its final destination) will be faxed to the 26th OWS briefing cell to be METWATCH'd. The following paragraphs detail the regularly scheduled out-of-station briefings.

4.4.1. The Daily Aircraft Maintenance (DAM) Meeting will take place every Wednesday and Friday in the Wing Conference Room. The times are subject to change based on mission requirements. The format and content of the briefing is tailored to the Wing Commander's preferences and the schedule may change on short notice. Slides will be sent to 14 OSS/OSOS on briefing days.

4.4.2. Instrument Refresher Course. A review of weather codes, products, and hazards for pilots is briefed in this course on the first Wednesday of each month. The course content is requested and coordinated through the WF Commander.

4.4.3. Cross-Country Mass Brief. The Weather Flight will provide out-of-station briefings based on available manning at the weather station and, at a minimum, will provide weather briefing support at the base weather station. **Mass briefings are to be considered informational only, and are not to be substituted for weather briefings.** The Weather Flight requires at least 24 hours notification for cross-country mass briefings and mandates that individuals requesting weather briefing support provide the following information 2 hours prior to their estimated takeoff time to ensure highest quality decision making product is provided:

4.4.3.1. Aircraft type/call sign.

4.4.3.2. Estimated time of departure.

4.4.3.3. Flight level (or levels).

4.4.3.4. Destinations (and alternates, if required).

4.4.3.4.1. Any enroute stops, low levels, visual routes, etc.

4.4.3.5. Arrival times.

4.4.3.6. Name of the person requesting the briefing.

Note: Only a rated aviator/pilot may receive the briefing if given verbally. If the weather briefing is received at the weather station; an IP must be present during the brief.

Note: All weather briefings will be faxed to the 26 OWS Flight Weather Briefing cell after the Weather Flight closes at 318-529-2609 DSN: 331-2609 by 1700L. This is to ensure reach-back support is available to departing crews via the 26 OWS when the Weather Flight is closed.

4.4.4. Deployment Concept Brief. The Weather Flight provides forecasts for staging bases and climatology for final destinations in support of contingency operations or exercises upon request.

4.4.5. Crisis Action Team (CAT). The CAT recall is either Commander's Senior Staff only or Full-Member CAT, and there is also a small contingent of Stand-by Agencies. The Weather Flight is a stand-by member of the CAT. The Weather Flight representative reports to the CAT only when requested to attend. The Weather Flight Briefer briefs current weather conditions, a forecast for Columbus AFB, and coordinates any other special weather support or weather data, such as hurricane forecasts, to the wing leadership.

4.4.6. Coordinated Weather Operations. Coordinated weather operations ensure all technicians, war-fighters, and decision-makers receive the weather information they need at the right time. It also ensures a coherent set of weather data is used at all command levels. The WF Commander, or his designated representative, will act as the Lead Weather Unit (LWU) point of contact for the WF to coordinate on how to provide weather services to missions involving more than one unit or service and when Columbus flying customers operate away from home base.

4.4.6.1. Aircrew and weather personnel should use the guidance provided below to determine the primary weather information provider for those missions that are not multi-unit tasked. Aircrew and weather personnel should use Table 4.1 to determine the primary weather information provider of the multi-unit portion of a particular mission.

4.4.6.1.1. Columbus Crews Departing Home Station. These are crews assigned to the 14 FTW. The Columbus AFB WF is the LWU and provides all mission weather services.

4.4.6.1.2. Columbus Crews Not Departing Home Station. While off-station (in-transit), Columbus aircrews should contact the Operation Weather Squadron (OWS) assigned with geographic responsibility covering the departure location IAW Flight Information Handbook Part C. An OWS desires a two-hour notice prior to briefing delivery.

4.4.6.1.3. Non-Columbus Crews Departing Columbus AFB (Transient). These crews (USAF, USA, USN, USMC, USCG, Guard, Reserve, Civil, and International) will utilize the WF assets, duty priorities permitting. In the event the WF cannot provide required services, the 26 OWS should be contacted for flight weather services. The 26 OWS desires a two-hour notice prior to briefing delivery. The Columbus WF will maintain a set of service instructions near the computers in the Flight Planning room of building 847.

4.4.6.1.4. AMC Flight Managed Sorties. All Integrated Flight Management sorties receive flight weather information from the 618 AOC (TACC). Flight managed aircrew should work through their assigned flight manager to resolve weather issues/concerns. A team of experienced forecasters work directly with flight managers in the TACC AOC. Columbus WF updates takeoff weather and provides access to weather products upon request. All CORONET tanker support missions are under 618 AOC (TACC). **Note**: Details regarding mission limiting weather must be worked in-concert with the TACC (DSN 779-0308). Very Important Person Special Airlift Mission (VIPSAM) and USSTRATCOM (TF-294) missions are supported by the local weather flights IAW wing procedures. Contract commercial carriers provide for their own weather support.

4.4.6.1.5. Air Refueling (AR) Sorties. The Missions Weather unit servicing the lead receiving aircraft unit is the LWU for, and provider of, the AR portion of a mission forecast. In some cases, such as ANG and AFR units, an OWS is the assigned weather unit. In other cases, command and control (C2) mission visibility is limited and the receiver's weather unit cannot be readily determined. In these cases and others similar, the Columbus WF should ensure that departing Columbus crews have the information they need to complete AR missions.

Table 4.1. Determination of Lead Weather Unit.

Type of Mission	Designated Lead Weather Unit
Joint Missions	Joint Meteorological and Oceanographic (METOC) Officer (JMO) defines weather for a Joint Operation in a Joint Operations METOC Letter of Instruction or support message.
GLOBAL POWER	Weather unit providing the Combat Air Force C2 element with weather information. **Note:** The C2 element for GLOBAL POWER mission is typically delegated to the wing-level.
CORONET	Weather unit providing the ACC C2 element with weather information.

	Note: Normally the ACC Air Operations Squadron Weather Flight.
Integrated Flight Management (IFM) missions	Weather unit assigned to the IFM C2 element.
GLOBAL REACH	Weather unit integrated with the AMC C2 Element (**Note**: Normally the 618 AOC (TACC)/XOW).
Air Refueling	Missions Weather unit servicing the lead receiving aircraft unit.
Unmanned Aircraft	Weather unit assigned to the Unmanned Aircraft Operational-Level C2 element (e.g., 432d Wing Operations Center, Global Hawk Operations Center).
Joint Airborne/Air Transportability Training (JA/ATTs) & DZ	Weather unit servicing the lead airlift aircraft unit.
Landing Zones (LZ) & Land Maneuver	Weather unit attached to the lead Army unit.
Deployed or Transient	Weather unit assigned/attached to the unit at home station (i.e., provide or arrange for weather support).
Special Operations	Lead weather unit depends on nature of the operation. (**Note:** When Special Operations Forces operate solely in their own channels, the Special Operations Forces WF or 23 WS will be the lead weather unit).

4.5. Forecast Process.

4.5.1. Shift Change and Meteorological Discussion. This discussion provides continuity between shifts. Mission services personnel relate their assessment of forecast products and thoughts on the current forecast as well as brief how they have used the 8-step MEFP to create the MWP. Airfield services personnel relay to mission services personnel the current weather situation and trends. Finally, the status of the weather equipment is briefed.

4.5.2. Mission Execution Forecast Process (MEFP). This program is designed to lead mission services personnel through a logical thought process to generate the CAFB Mission Weather Product. It encompasses weather regime discussions, climatology, supported units' sensitivities, missions of the day, and utilizes the MWP Worksheet to organize data interpretation.

4.5.3. METEOROLOGICAL WATCH (METWATCH)/Mission-Scale Meteorological Watch (MISSION WATCH). Mission Services personnel monitor weather conditions at the base, in flying training areas, and at other locations to ensure weather conditions are occurring as expected. If unforecast weather conditions begin to form either at the airfield or in CAFB's area of operations, forecasters will update the MWP and alert the SOF and FTS's to these changes. Mission Services personnel METWATCH for situational awareness and update the MWP, at a minimum of every two hours, or as weather impacts dictate, and issue Watches, Warnings and Advisories, as necessary, to inform supported units of hazards. When the airfield is open and during times of expected severe weather, 14 OSS/OSW personnel are on duty to provide "eyes forward" support to 26 OWS forecasters. Otherwise, 26 OWS forecasters conduct a remote METWATCH, issue and disseminate all Watches and Warnings, and initiate a recall of 14 OSS/OSW personnel as necessary.

Figure 4.1. RM METWATCH Procedures.

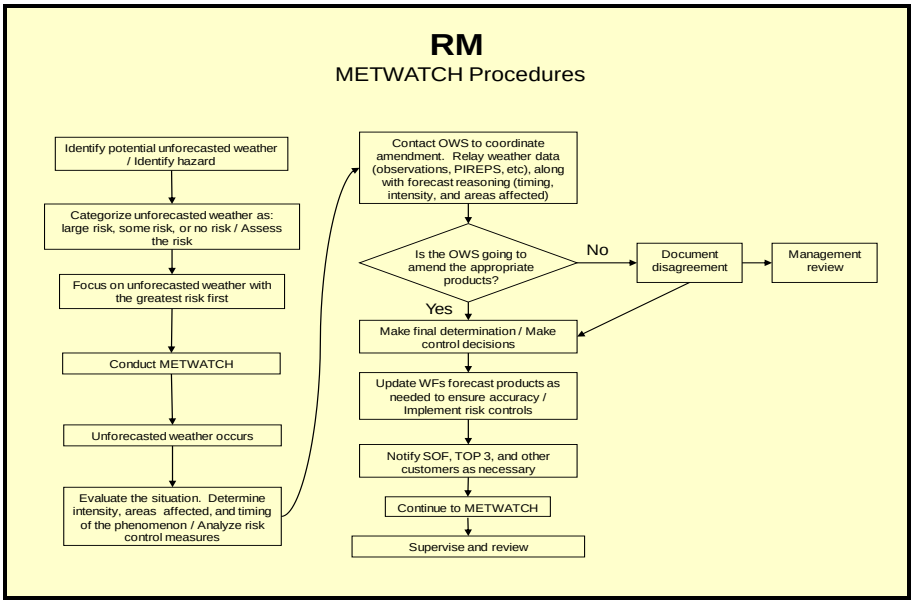


Figure 4.2. RM MISSIONWATCH Procedures.

1) Determine the mission(s) placed at risk due to terrestrial or space weather conditions.
2) Continuously monitor at risk mission routes, areas, installation, etc., for significant changes. Spot-check low risk missions.
3) Focus on mission-limiting weather thresholds for each specific mission.
4) Evaluate for change in risk category and reprioritize MISSIONWATCH as appropriate. Notify operational users of weather conditions crossing mission-limiting thresholds.
5) Integrate weather impacts into operational alternatives decision process.
6) Update MWPs as necessary.
7) Continue to monitor missions based on MISSIONWATCH threat.

4.5.4. Operational Verification and Quality Assessment. Forecasts are verified against ceiling and visibility criteria. Additionally, products are evaluated for coding errors. These results are integrated into the flight's quality assessment measurements.

4.5.5. **Flight Weather Briefings.** See Paragraph 4.7.2., this chapter.

4.5.6. **Mission Planning.** Mission services personnel work one-on-one with aircrews to help determine the best places to fly missions; the Mission Weather Product, as well as a five-day planning weather forecast, are available on the weather web pages.

4.5.7. Weather Watches, Warnings, and Advisories. Covered in detail in Chapter 5 of this instruction.

4.6. Terminal Aerodrome Forecasts (TAFs).

4.6.1. Aviation forecasts in TAF code provide meteorological information for flight planning and command and control activities for a specific aerodrome complex. The TAF is not tailored to the aircraft and mission limitations of Columbus AFB. The TAF is written in METAR code to conform to worldwide standards. This forecast is valid for a 5 statute mile

radius around the center of the airfield; published every 8 hours when the airfield is open, with each forecast valid for 30 hours. The Columbus AFB TAF is issued by 26 OWS and is disseminated through the JET. If 26 OWS is unable to operate for a period of less than 72 hours, 14 OSS/OSW mission services personnel will assume 24-hour METWATCH and TAF responsibilities for Columbus AFB.

4.6.2. Example of TAF Format.

KCBM	FCST	1512-1618	22005KT	7	OVC070	ALSTG30.43INS																		
1	2	3		4	5	6			7															
BECMG	17-18	33009KT	7	BKN035	OVC070	ALTIMETER30.38 INS																		
	8	9	10	11	12	13			14															
BECMG	08-09	34005KT	4	BR	SCT030	BKN070	ALTIMETER30.45INS	TX17/1521Z																
15	16	17	18	19	20	21			22													23		
TN08/1612Z	LAST NO AMDS AFT 1618	NEXT 1712																						
24					25				26															

Key

1) Station Identifier for Columbus AFB

2) Forecast Type (FCST=initial forecast; AMD=amended forecast)

3) Valid Day-Time for Forecast; format is DDHH-ddhh where DDHH is initial day/time of forecast; ddhh is the day/hour when valid time of forecast ends

4) Winds - direction and speed in knots

5) Visibility in statute miles

6) Sky condition, amt and height of cloud layers

7) Minimum altimeter setting expected during that forecast period

8) Identifies the change group (BECMG, TEMPO, FM)

9) Time the group becomes valid in Zulu (It is valid until next change group or end of forecast)

10) Winds - direction and speed in knots

11) Visibility in statute miles

12) Sky condition (cloud layers and heights)

13) Sky condition (cloud layers and heights)

14) Minimum altimeter setting (in inches of mercury)

15) Identifies the change group (BECMG, TEMPO, FM)

16) Time the group becomes valid in Zulu (It is valid until next change group or end of forecast)

17) Winds - direction and speed in knots

18) See 11

19) Obstruction to vision (weather phenomenon that drops visibility below unobstructed)

20) See 12

21) See 12

22) See 14

23) Forecast maximum temperature is 17°C at 152100Z. (Time of maximum temperature in TAF)

24) Forecast minimum temperature is 8°C at 161200Z. (Time of minimum temperature in TAF)

25) No changes to TAF after 1618 (16th day and 18th hour in ZULU)

26) Next forecast will be issued at 1712 (17th day and 12th hour in ZULU)

27) The Columbus AFB TAF will specify and be amended for standard Air Force Weather TAF criteria in accordance with AFMAN 15-129V1, Table 3.8., as outlined below in Table 4.2.

Table 4.2. TAF Amendment Criteria.

Forecast Element/ Occurrence	**Standard AFW TAF Amendment Criteria**	
Ceiling and/or Visibility observed or later expected to decrease to less than, or if below, increase to equal or exceed:	**Category**	**Limits**
	E	≥ 2,000 ft / 3 SM
	D	< 2,000 ft but ≥ 1,000 ft/ < 3 SM but ≥ 2 SM
	C	< 1,000 feet but ≥ 700 ft / < 3 SM but ≥ 2 SM
	B	< 700 ft but ≥ 200ft / < 2 SM but ≥ 1/2 SM
	A	< 200 / < 1/2 SM
	Categories are determined by the lower of the values.	
	Notes:	
	1. Forecast category is determined by the lower ceiling or visibility value.	
	2. Use surface visibility to determine forecast category.	
	3. Substitute the lowest published airfield minimum for Ceiling/Visibility category A.	
	4. During periods of rapidly changing ceilings or visibilities crossing multiple categories, consider conditions occurring for the greatest aggregate total during a cardinal hour the predominant condition for that cardinal hour.	
*** Specification Criteria**	**1,500 ft ceilings**: **Local threshold based on fuel requirements**	
Surface Winds:	Wind Speed: The difference between the predominant wind speed and the forecast wind speed is ≥ 10 knots and/or the difference between the observed gusts is ≥ 10 knots from the forecast gust. For example, a forecast of 23018G25KT must be amended if observed predominant wind speed is 28 knots or more, or if the observed gusts are 35 knots or higher. Similarly, amend the TAF if predominate winds are 8 knots or less, or gusts are 15 knots or less.	
	Wind Direction: Direction change > 30 degrees when the predominant wind speed or gusts are expected to be over 15 knots.	

Icing, not associated with thunderstorms, from the surface to 10,000 feet AGL:	The beginning or ending of icing of any intensity which was not specified in the forecast.
Turbulence (for Cat II aircraft), not associated with thunderstorms, from the surface to 10,000 feet AGL:	The beginning or ending of turbulence first meets, exceeds, or decreases below moderate or greater thresholds and was not specified in the forecast.
Forecast **Weather Warning** criteria and/or TAF Amendable **Weather Advisory** criteria – including non-convective low-level winds shear:	Occur, or are expected to occur, during the forecast period, but were not specified in the forecast. Were specified in the forecast, but are no longer occurring or expected to occur during the forecast period. **Note**: Watches are exempt from this requirement. Forecasters may specify watch criteria in the TAF when, by their judgment, the specific nature of the threat dictates.
Thunderstorms:	Incorrect forecast start or end time.
Altimeter Setting	Altimeter setting meets or exceeds 31.00 INS and was not specified in the forecast **OR** altimeter setting, if above, drops below 31.00 INS and was not specified during the forecast period. Altimeter setting drops below 28.00 INS and was not specified in the forecast **OR** altimeter setting, if below 28.00 INS, increases above 28.00 INS and was not specified in the forecast.
Specification of Temporary Conditions:	Forecast conditions specified as temporary become predominant conditions. Forecast conditions specified as temporary do not occur during the cardinal hour as forecast. Forecast conditions specified as temporary are no longer expected.
Changes to Predominant Conditions:	Forecast change conditions (BECMG or FM group) occur before the beginning of the specified period of change and are expected to persist. Forecast change conditions (BECMG or FM group) do not occur within 30 minutes after the specified time. Forecast change conditions (BECMG or FM group) are no longer expected to occur.
Representative Conditions:	Forecast conditions are considered unrepresentative of existing or forecast conditions and amending the forecast improves safety, flight planning, operations efficiency, or assistance to in-flight aircraft.

4.7. Mission Weather Product (MWP).

4.7.1. The MWP is prepared daily when flight training is conducted at Columbus AFB. The MWP is not prepared when the airfield is opened for special flights or when regular training is not scheduled. The MWP is designed to replace local weather briefing support and provide the FTS's with all the essential information needed to conduct local flying operations to include out and back flights within the WF's hazard chart area. Additionally, the MWP will assist instructors and students in planning for their various missions as well as provide the SOF and SUPs forecasts vital to conducting safe training. The MWP is made available via the base LAN on the Weather Flight's web page, and on the 26 OWS web page. In the event of a LAN outage, the MWP will be distributed via fax to the SOF and flying squadrons. If there is a telephone and LAN communications outage, the weather flight will send a runner to the flying squadrons if manning permits. If there are any questions about the MWP, contact the mission services personnel for clarification. Attachment 2 of this document illustrates a normal working copy of the MWP.

4.7.1.1. In the event the WF cannot provide a MWP to CAFB flying training squadrons due to manning levels or temporary duty commitments, WF leadership will coordinate requests for briefing support with the 26 OWS. A Support Assistance Request (SAR) will be filed to accommodate any data requests which cannot be fulfilled by the WF.

4.7.2. Policy on MWP Use for Local and Cross Country Flights. Crews will use the MWP and locally produced hazard charts located on the WF web page for all local flying operations at CAFB to include out and backs. In the event the airfield and WF are not open, crews will use the 26 OWS's Flight Briefing Cell, which will be pre-coordinated by the WF. Crews will receive cross-country weather briefings for all cross-country missions, regardless of distance, and any out and back flights beyond the MWP hazard chart coverage. If locally produced hazard charts are not available, those produced by 26 OWS may be substituted. The MWP will be used by all flying squadrons for local training, MOA operations, and out-and-back flights within the WF's hazard chart area, unless otherwise coordinated to be provided by the OWS. Student pilots are prohibited from being the sole receiver of a weather brief.

4.7.2.1. Local training missions are defined as any training flight that begins and ends at Columbus AFB (KCBM) or Golden Triangle Airport (KGTR) during the same training sortie.

4.7.2.2. If the training flight is considered a cross-country flight (i.e., a flight that does not return to KCBM/KGTR on the same day, regardless of distance from KCBM/KGTR), a weather briefing is both appropriate and required. This briefing may be written, or it may be given verbally when VFR conditions with no weather hazards exist along the entire route, according to the discretion of the requesting pilot.

4.7.2.3. An electronic MWP is also maintained at the WF for phone-in and face-to-face verbal updates. An Instructor Pilot (IP) will receive a weather briefing if any portion of an out-and-back flight is outside the MWP hazard chart coverage, as student pilots may not be the sole receiver of a briefing.

4.7.3. The MWP will be produced and updated according to the following guidelines:

4.7.3.1. At a minimum, one MWP will be prepared per flying training day.

4.7.3.2. The Mission Weather Product will be available at least an hour and a half prior to the start of local flying to accommodate formal briefing production.

4.7.3.3. The MWP will be updated every two hours, or as weather impacts dictate as described in Table 4.3. of this instruction, and throughout the day to provide the most timely and accurate product to our customers.

Figure 4.3. RM MWP Procedures.

4.7.4. The MWP is divided into two sections: MWP and HAZARDS. Existing sections may be removed/altered, or additional sections added, to enhance or improve mission support.

4.7.4.1. MWP Section. This section contains the 14 OSS/OSW generated Mission Weather Product, Watches, Warnings and Advisories, solar/lunar data, forecast surface temperatures, pattern and climb winds, Space Weather Impact, Hazards snapshots, AR Track forecasts, MOA forecasts, IR, VR, and SR Routes forecasts, 175-1 Request ability and feedback ability. Unlike the TAF, the local Mission Weather Product is tailored to the specification and amendment criteria unique to the CAFB mission and is the official forecast for CAFB. Route and track forecasts provide cloud coverage (FEW, SCT, BKN) along with cloud bases and tops for the area encompassed by each route's airspace and will be amended for incorrect cloud extent encompassed by or along the routes and tracks and for unforecasted clouds forming or moving into the route or track airspace.

4.7.4.2. HAZARDS.

4.7.4.2.1. TSTMS. This section contains a graphic representation of forecast thunderstorm hazards for commonly used flying areas, routes, and locations. This product is time phased over the course of the flying training day. The thunderstorms will be moved along with the associated systems or forecast afternoon air mass thunderstorm activity. This product illustrates the location, coverage amount, timing, and maximum tops of the thunderstorm activity.

4.7.4.2.2. ICING. This section contains a graphic representation of forecast icing hazards in our local flying area. This product is time phased over the course of the flying training day. The icing areas will be moved with the associated frontal systems. This product illustrates the location, type of icing, timing, intensity, and the base and top of activity.

4.7.4.2.3. TURB. This section contains a graphic representation of forecast turbulence hazards in our local flying area. This product is time phased over the course of the flying training day. The turbulence areas will be moved with the associated frontal systems. This product illustrates the location, type of turbulence (moderate or greater only), timing, intensity, and the base and top of activity.

4.7.5. Other links will be available on the WF's website, such as links to the 26 OWS, radar imagery, satellite imagery, meteograms, and other useful data.

4.7.6. Local Mission Specification Criteria. The mission forecast portion of the MWP will specify time of occurrence to the nearest hour and duration and intensity where applicable, when one or more of the weather elements located in Table 3.1., 3.2. and 3.2.1. are expected to occur within the valid period of the forecast, as well as the following:

Table 4.3. Ceiling and Visibility Specification Criteria.

Ceiling	Visibility
5,000 ft (T-38,T-6)	**5 Miles** (T-38, T-6)
3,000 ft (T-6)	**4 Miles** (Local Entry Point)
2,800 ft (T-38)	**3 Miles** (T-38, T-6, & 26 OWS)
2,500 ft (T-6)	**2 Miles** (All Acft & 26 OWS)
2,100 ft (T-6)	**1 3/4 Miles** (FLIP)
2,000 ft (T-38, 26 OWS)	**1 5/8 Miles** (FLIP)
1,500 ft (T-38, T-6)	**1 1/2 Miles** (FLIP)
1,000 ft (26 OWS)	**1 3/8 Miles** (FLIP)
700 ft (T-6, T-1, 26 OWS)	**1 Mile** (15-111) (13-204) (FLIP)
600 ft (T38)	**7/8 Mile** (FLIP)
500 ft (T-6 & T-1)	**3/4 Mile** (13-204) (FLIP)
300 ft (AETC Mins All Acft)	**1/2 Mile** (15-111) (13-204) (FLIP) (26 OWS)
200 ft (FLIP Mins All Acft & 26 OWS)	

4.7.6.1. Surface Winds.

4.7.6.1.1. Speed change of 10 knots or more.

4.7.6.1.2. Direction change of greater than 30 degrees when the predominant wind speed (including gust) is expected to be over 15 knots.

4.7.6.2. Precipitation. Type and intensity.

4.7.6.3. Thunderstorms. Any occurrence.

4.7.6.4. Turbulence. (For CAT II aircraft) for any intensity not associated with thunderstorms from the surface to 10,000 feet above mean sea level (MSL). If necessary, address the area above 10,000 MSL.

4.7.6.5. Icing. Any icing (any intensity) not associated with thunderstorms at any level.

4.7.6.6. Non-convective Low-Level Wind Shear. Any occurrence.

4.7.6.7. Any locally established criteria for weather warnings or advisories that can be specified in the mission forecast.

4.7.7. Local Mission Weather Forecast Amendment Criteria.

4.7.7.1. Mission services personnel may amend the mission portion of the MWP anytime they consider it advisable in the interest of safety, efficiency of aircraft operations, flight planning, operational control, or in-flight assistance to aircraft to ensure the forecast is representative of actual or forecasted conditions.

4.7.7.2. For conditions listed as amendment criteria, mission services personnel must amend the MWP.

4.7.7.2.1. Anytime an unforecasted change is expected to occur and is expected to last more than 30 minutes and is not correctly forecast by the next whole hour.

4.7.7.2.2. Anytime an unforecasted change occurs, is expected to last at least 30 minutes and is not forecasted by the next whole hour from the time of occurrence (e.g., if the time is 2147Z, the next whole hour is 2200Z not 2300Z.)

4.7.7.2.3. Anytime a forecast condition does not occur by the specified hour and is not expected to occur within the next 30 minutes. For example, a BECMG 2122 group would require an amendment if the forecast change occurred before 2030Z or after 2229Z.

4.7.7.2.4. Anytime a temporary group becomes predominant or is not expected to occur. Temporary conditions are considered thus when they occur once during a specified time period for less than 30 consecutive minutes or occurring for an aggregate total of less than 30 minutes of every cardinal hour.

4.7.7.3. Columbus AFB MWP Amendment Criteria. Mission services personnel will notify the SOF of changes to the MWP if any unforecasted weather phenomenon is expected to occur.

4.7.7.3.1. Ceiling or Visibility. Observed or later forecasted, to increase to or exceed, or decrease to less than any of the following values:

Table 4.4. MWP Amendment Criteria.

Ceiling	**Visibility**
3,000 ft (T-6)	**3 Miles** (T-38, T-6 & 26 OWS)
2,800 ft (T-38)	**2 Miles** (All Acft & 26 OWS)
2,500 ft (T-6)	**1 ½ Miles** (T-6 & T-1)
2,000 ft (15-129)	**1 Mile** (AETC Mins All Acft)
2,100 ft (13-204)	**½ Mile** (FLIP Mins All Acft & 26 OWS)
1,500 ft (T-38, T-6)	
1,000 ft (26 OWS)	
500 ft (T-6 & T-1)	
300 ft (AETC Mins All Acft)	
200 ft (FLIP Mins All Acft & 26 OWS)	

4.7.7.3.2. Surface Winds.

4.7.7.3.2.1. The difference between the predominant wind speed (or gust) and the forecast wind speed (or gust) is 10 knots or more.

4.7.7.3.2.2. Direction change greater than 30 degrees when the predominant wind speed or gusts are expected to be over 15 knots.

4.7.7.3.3. Precipitation.

4.7.7.3.3.1. Unforecasted freezing precipitation begins or ends.

4.7.7.3.3.2. Precipitation causing a watch, warning, or advisory to be issued or canceled.

4.7.7.3.3.3. Mission services personnel consider the occurrence or nonoccurrence of precipitation to be operationally significant.

4.7.7.4. Turbulence. The beginning or ending of turbulence not associated with thunderstorms from surface to 10,000 feet MSL which first meets, exceeds, or decreases below moderate or greater thresholds (for CAT II aircraft) and was not specified in the forecast.

4.7.7.5. Icing. The beginning or ending of icing of any type or intensity not associated with thunderstorms for any level not specified in the forecast.

4.7.7.6. Non-convective Low-Level Wind Shear.

4.7.7.6.1. Is occurring and is expected to continue or is expected to begin, but is not specified in the forecast.

4.7.7.6.2. Is forecast, but is not expected to occur during the forecast period.

4.7.7.7. Weather Warning and/or Amendable Weather Advisory Criteria.

4.7.7.7.1. Occur or are expected to occur during the forecast period, but were not specified in the forecast.

4.7.7.7.2. Were specified in the forecast, but are no longer occurring or expected to occur during the forecast period.

4.7.8. Local Mission Forecast Verification.

4.7.8.1. The 14 OSS/OSW can track weather cancels and weather adds using the Daily Deviations Totals for Mission verification statistical purposes. This information will be e-mailed to the WF daily, Monday through Friday, by the 14 FTW/MXOD. The information will be evaluated to aid in forecast verifications, and as a means to identify and validate forecast in the MWP process.

4.7.8.2. The weather flight will track the metrics based off the initial MWP forecast for the day. The weather flight will track the following forecast mission metrics for the MWP. This information will be forwarded to AETC HQ.

4.7.8.2.1. Forecasted go conditions versus actual go missions.

4.7.8.2.2. Forecast no-go conditions versus actual no-go mission.

4.7.8.2.3. Forecast go conditions versus actual no-go missions.

4.7.8.2.4. Forecast no-go conditions versus actual go missions.

4.8. Metrics. The 26 OWS will track its own metrics for the CAFB TAF, warnings, and watches, to include lead times and false alarm rates. The 14 OSS/OSW will METWATCH CAFB and provide "Eyes Forward" support to help verify watches and warnings issued by 26 OWS. The Columbus Weather Flight will produce metrics and verify the accuracy of forecasts for the most commonly used routes.

Chapter 5

WEATHER WATCHES, WARNINGS, AND ADVISORIES

5.1. General Information. 26 OWS and 14 OSS/OSW personnel generate and relay all official hazardous weather bulletins for Columbus AFB. Customer requirements and Air Force instructions drive the criteria for these notices. Customers execute actions outlined in their response checklist to prepare for, survive, and recover from severe weather events. Once issued, a weather notice is valid until it is canceled or the specified valid period expires. The types of weather notices are as follows:

5.1.1. Weather Watch. A special notice to supported agencies alerting them of the potential for weather conditions of intensity to pose a hazard to life or property. Watches apply to an area within 5 NM from the center of the airfield.

5.1.2. Weather Warning. A special notice to supported agencies giving them advance notification of weather conditions of such intensity to pose a hazard to property or life for which the agencies must take protective action. Warnings apply to an area within 5 NM of the center of the airfield.

5.1.3. Observed Weather Warning. A special notice to supported agencies giving them notification that weather conditions of intensity to pose a hazard to property or life are occurring within 5 NM from the center of the airfield.

5.1.4. Forecast Weather Advisory (FWA). A special notice to supported agencies giving them advance notification (with sufficient time to allow protective actions to be taken) of mission limiting, non-severe conditions are expected to directly affect our local training areas and/or an area within 5 NM from the center of the airfield.

5.1.5. Observed Weather Advisory. A special notice provided to supported agencies which notify them of non-severe weather conditions that could affect their operations are occurring within 25 NM (observed lighting strikes only) and within 5 NM from the center of the airfield.

5.1.6. Gunshy Watches, Warnings and Advisories. 26 OWS issues these warnings and AFWA issues as the backup for the 26 OWS.

5.2. Gunshy PROCEDURES.

5.2.1. 14 OSS/OSW is responsible for the METWATCH for Columbus AFB and supported agencies. 14 OSS/OSW will also MISSIONWATCH Gunshy Auxiliary Airfield, and Golden Triangle Regional (KGTR) Airport ONLY when Air Force assets are located at KGTR. When mission-impacting conditions are forming or imminent, forecasters will notify the SOF immediately.

5.2.2. The 26 OWS directly contacts Gunshy with the WWAs, and affected agencies are notified so personnel can take protective actions.

5.3. Hurricane and Tropical Storm Advisories. All hurricane and tropical storm advisories are relayed to predetermined agencies when the current or forecast position of the storm center is within 200 NM and hurricane or tropical storm conditions are expected to occur at Columbus AFB. Advisories from the National Hurricane Center depicting storm track and intensities are

relayed verbatim. Mission Services personnel will not modify or deviate from them in any way. Also, Mission Services personnel will follow the Tropical Cyclone Threat Assessment Product (TC–TAP) produced by the OWS for all derived wind values, which will be relayed verbatim.

5.3.1. The weather flight commander, or designated representative, will provide the necessary forecast services/products required for Wing leadership to determine or declare a Tropical Cyclone Condition of Readiness or Hurricane Condition as outlined in CAFB Plan 555, Hurricane Evacuation Plan.

5.4. Message Formats.

5.4.1. Weather Watch.

5.4.1.1. COLUMBUS AFB WEATHER WATCH 11-001 **(1)**

VALID 07/1630Z (07/1030L) TO 07/1800Z (07/1200L) **(2)**
THE POTENTIAL EXISTS FOR TORNADO DEVELOPMENT, SEVERE
THUNDERSTORM DEVELOPMENT AT COLUMBUS AFB. A WARNING WILL BE ISSUED IF REQUIRED. **(3)**
54/ZZ **(4)**

5.4.1.2. Weather Watch Key (XX-YYY; XX=month, YYY=number of watch during month).

(**1**). Identifies Columbus AFB weather watch and the watch number.

(**2**) Time the watch is valid for in Zulu and Local.

(**3**) The type of weather that conditions are favorable for.

(**4**) Time past the cardinal hour the watch was entered into JET and the initials of mission services personnel.

5.4.2. Weather Warning:

5.4.2.1. COLUMBUS AFB WEATHER WARNING 11-004 **(1)**

VALID 07/1810Z (07/1210L) TO 07/1845Z (07/1245Z) **(2)**
TORNADO SIGHTED ON RADAR 8W OF CAFB MOVG ENE. EXPECT
TORNADO ACTIVITY IN COLUMBUS AREA FROM 07/1215L TO 07/1245L. **(3)**
10/ZZ **(4)**

5.4.2.2. Weather Warning Key.

(**1**) Identifies Columbus AFB weather warning and the warning number.
(**2**) Time the warning is valid for in Zulu and Local.

(**3**) Weather expected to impact the base.

(**4**) Time past the cardinal hour the warning was entered into JET and the initials of mission services personnel.

5.4.3. Weather Advisory:

AREA **(OR TERMINAL**) WEATHER ADVISORY 11-001 **(1)**
VALID 12/2106Z (12/1506L) TO 12/2300Z (12/1700L) **(2)**
LGT RIME ICG FL:100-140 FROM TUP-BHM-MGM-JAN THIS INCLUDES CBM **(3)**

(**1**) Weather Advisory Key.

(**2**) Identifies Columbus AFB weather advisory and the advisory number.

(**3**) Time the advisory is valid for in Zulu and Local.

5.4.3.1. Type of advisory, flight levels, and area covered.

5.5. Weather Watch/Warning/Advisory Dissemination. Figure 5.1. illustrates the normal flow of weather notifications. During periods of communication outages or situations where adverse weather develops too rapidly for notification through the normal system, 14 OSS/OSW broadcasts the condition and estimated timing over the commander's net. The broadcast will emphasize that it is a communication out notification. When time and capability permit, 14 OSS/OSW will resume normal notification procedures. Cancellation and termination of weather notifications utilize the same information dissemination system.

5.6. Watch and Warning Criteria. Watch specification criteria deviation from 15-129V1 has been coordinated and documented with OWS in WF-OWS Installation Data Sheet. See criteria in Tables 5.1. and 5.2.

Table 5.1. Weather Watch Specifications.

CRITERIA	**DESIRED LEAD-TIME**
Potential for Tornado or Funnel Cloud	4:00 hours
Potential for Severe Thunderstorms: Damaging Winds ≥ 50 knots and/or Damaging Hail ≥ ¾ inch	4:00 hours
Potential for Moderate Thunderstorms: High Wind ≥ 35 knots but less than 50 knots and/or Large Hail ≥ ¼" but < ¾"	4:00 hours
Potential for Damaging Winds: Surface winds not associated with thunderstorms ≥ 50 kts	4:00 hours
Potential for Strong Winds: Surface winds not associated with thunderstorms ≥ 35 kts but < 50 kts	4:00 hours
Potential for ≥ 2" rainfall in 12 hours	12:00 hours
Potential for Snow accumulation*	12:00 hours
Potential for Blizzard conditions**	12:00 hours
Potential for Freezing precipitation (any intensity)	12:00 hours
Potential for Sand/Duststorm***	12:00 hours
Potential for Lightning within 5 NM****	0:30 minutes
*Any Snow Accumulation	
**Duration of 3 hours or more, sustained winds of 30 knots or greater, considerable falling and/or blowing snow, with prevailing visibility of 1/4 mile or less (all conditions must be met).	

*** Potential for winds carrying sand/dust particles from the surface to no more than fifty feet above the surface, prevailing visibility < 5/8 SM to 5/16 SM. For prevailing visibility of < 5/16 SM, the storm is considered a heavy sand/duststorm.
****A Lightning Watch will not be canceled if the potential exists for thunderstorms to occur within 5 NM of Columbus AFB airfield within 30 minutes IAW AFI 91-203, para 11.2.3.1.

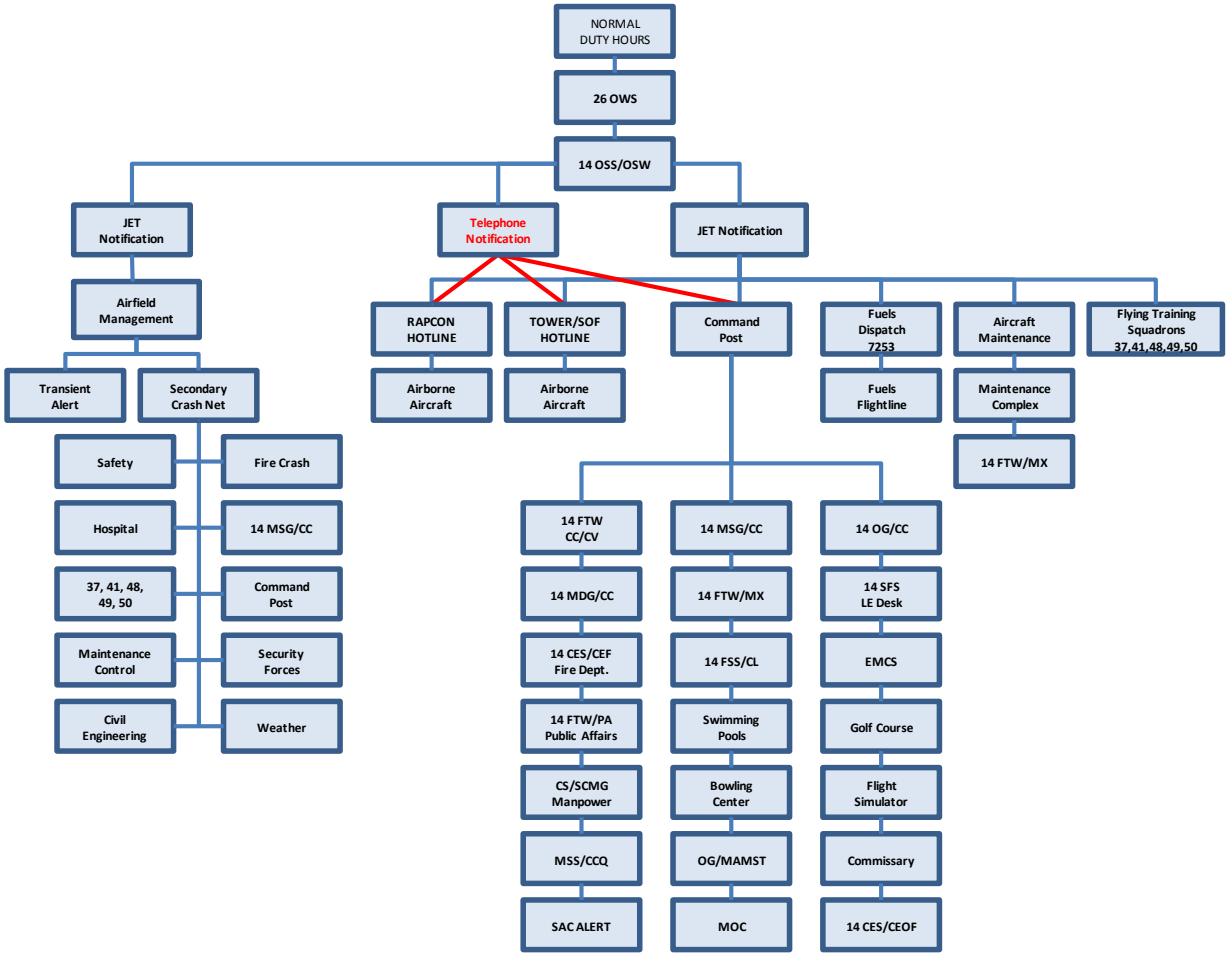
Table 5.2. Weather Warning Specifications.

CRITERIA	**DESIRED LEAD-TIME**
Tornado*	0:30 minutes
Severe Thunderstorms: Damaging Winds ≥ 50 knots and/or Damaging Hail ≥ ¾ inch	2:00 hours
Moderate Thunderstorms: High Wind ≥ 35 knots but less than 50 knots and/or Large Hail ≥ ¼" but < ¾"	1:30 hours
Damaging Winds: Surface winds not associated with thunderstorms ≥ 50 kts	2:00 hours
Strong Winds: Surface winds not associated with thunderstorms ≥ 35 kts but < 50 kts	1:30 hours
≥ 2" rainfall in 12 hours	1:30 hours
Snow accumulation**	1:30 hours
Blizzard conditions***	1:00 hour
Freezing precipitation	1:30 hours
Sand/Duststorm****	1:00 hour
Lightning within 5 NM*****	Observed
*Upon receipt of a tornado warning, Command Post sounds the base siren in a 3-5 minute steady tone	
**Any Snow Accumulation	
***Duration of 3 hours or more, sustained winds of 30 knots or greater, considerable falling and/or blowing snow, with prevailing visibility of 1/4 mile or less (all conditions must be met).	
****Winds carrying sand/dust particles from the surface to no more than fifty feet above the surface, prevailing visibility < 5/8 SM to 5/16 SM. For prevailing visibility of < 5/16 SM, the storm is considered a heavy sand/duststorm.	
*****A Lightning Warning for lightning within 5 NM will be cancelled when the thunderstorms have passed beyond the 5NM radius of the Columbus AFB airfield IAW AFI 91-203, para 11.2.3.2.	
Note: When the WF is closed, the 26 OWS will issue and cancel Lightning Warnings.	

5.7. Watch and Warning Dissemination.

5.7.1. Normal Duty Hours. See Figure 5.1. for the dissemination of watches and warnings during normal duty hours.

Figure 5.1. Watch and Warning Dissemination During Normal Duty Hours.



5.7.2. The Command Post utilizes the AtHOC notification system to give situational awareness to wing personnel when severe weather threatens Columbus AFB. This notification consists of an electronic banner that acts as a pop-up on all computers logged into the base LAN. Additionally, personnel are encouraged to input their personal phone numbers into AtHoc. This will allow WWAs to be transmitted via phone to personnel who are not at their computers. The AtHOC system is a supplement to WF telephonic and JET notifications and is not the official notification system for weather Warnings, Watches, and Advisories.

5.7.3. After normal duty hours. When local flying terminates, 14 OSS/OSW is not available to provide observations of weather phenomenon, including lightning observations. Figure 5.2 below illustrates the dissemination of watches and warnings during the times when 14 OSS/OSW is closed.

Figure 5.2. Watch and Warning Dissemination After Duty Hours.

5.7.4. Post-Severe Weather Event Verification. After a severe weather event, the weather flight will utilize SPC products and reports from storm spotters. All community personnel are encouraged to call the weather flight at 742-2992 (662-434-2992) if they have an

eyewitness report of a severe weather occurrence. The weather flight will also notify 26 OWS of post-severe weather.

5.8. Advisory Criteria.

5.8.1. Forecast Advisory Specifications. Columbus AFB currently has only one forecast advisory (freezing temperatures) issued for the base. The 26 OWS is the issuing authority. The WF will ensure receipt by affected agencies during duty hours. During non-duty hours, the 14 FTW/CP will disseminate as required to the agencies depicted in Figure 5.2. The WF will take over responsibility for issuing the advisory during 26 OWS communications outages.

5.8.2. Forecast advisory criteria, lead-time, and type.

Table 5.3. Forecast Advisory Information.

CRITERIA	DESIRED LEAD-TIME	TYPE OF ADVISORY
Temp less than/equal to 32F	6 hours	Terminal

5.8.3. Observed Weather Advisory Specifications.

5.8.3.1. An observed advisory is issued on the first occurrence of the designated criteria.

5.8.3.2. Area advisories are valid only during forecast section duty hours and will specify where the advisory is valid.

5.8.3.3. Types of advisories.

5.8.3.3.1. Terminal. Within 5 NM of Columbus AFB.

5.8.3.3.2. Area. Arkansas, Louisiana, Mississippi, Tennessee, Kentucky, Alabama and Georgia.

5.8.3.4. Observed advisory criteria, lead-time, and type. **Note: All observed advisories are issued only when SUPT is in progress.**

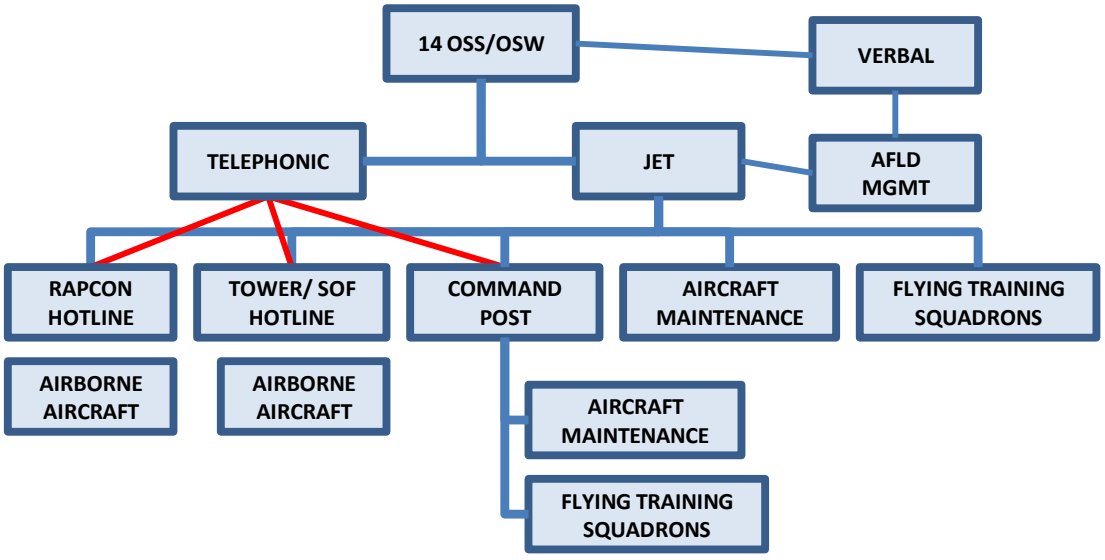
Table 5.4. Observed Advisory Information.

CRITERIA	DESIRED LEAD-TIME	TYPE OF ADVISORY
Fighter Index of Thermal Stress (FITS) (Caution or Danger)	As observed	Terminal
Wind Chill Index (WCI) (Caution or Danger)	As observed	Terminal
Crosswinds $\geq$ 05 knots with Ice or Wet with Standing Water on Runway ****For T-6 airframes only**	As observed	Terminal

Observed crosswinds ≥ 10 kts with ice, wet, wet with standing water, or wet with outside ponding on the runway occuring at CAFB ****For T-6 airframes only**	As observed	Terminal
Crosswinds ≥ 15 knots	As observed	Terminal
Crosswinds ≥ 20 knots	As observed	Terminal
Crosswinds ≥ 25 knots	As observed	Terminal
Crosswinds ≥ 30 knots	As observed	Terminal
Turbulence, severe or greater below 10,000 MSL	As observed	Terminal or Area
Low-Level Wind Shear (LLWS) below 2,000 ft (Not associated with thunderstorms)	As observed	Terminal
Lightning within 25 NM	As observed	Area
Lightning within 10 NM	As observed	Area
Icing of any intensity within Local Flying Area	As observed by aircraft	Area

5.8.4. Observed Advisory Dissemination. Use the following figure for dissemination of icing, turbulence, low level wind shear, WCI, crosswinds, and FITS observed advisories.

Figure 5.3. Advisory Notification From 14 OSS/OSW.



Chapter 6

SPACE WEATHER SUPPORT

6.1. General Information. Space environmental conditions affecting the mission at Columbus AFB will become more apparent as older training aircraft are modernized or replaced by more sophisticated systems. Today, the most significant impact is interference with ultra-high frequency (UHF) communications. A UHF link to Air Force Weather Agency Space Weather products is provided on all 14 OSS Weather Web Pages and MWP for the communications personnel to use during times of UHF radio outages. This link will provide the customer with a graphic product that will show space weather impacts for the local Columbus, MS area.

6.2. Space Products Support. The MWP has three color coded links to the 26 OWS web site that provide GPS, UHF and HF space weather support to the base. The link backgrounds will be green when no impact is expected, yellow for impacts expected. Also, the weather flight will be notified via phone from AFWA of any severe solar impacts that are expected to occur and the weather flight will contact the Communications Squadron on base to update them on possible space weather impacts.

Chapter 7

SEVERE WEATHER READINESS

7.1. General Information. AFI 10-229, *Responding to Severe Weather Events*, has outlined actions that will be taken to prepare for, and recover from severe weather. The Wing Commander will chair meetings as required, but not less than annually, to review installation severe weather preparedness, capabilities, requirements, and procedures. These meetings will be attended by representatives of base agencies responsible for developing protective action plans, WF, guard and reserve components, tenant organizations, local off-base units, and other organizations with severe weather notification requirements (e.g. Safety, CE Readiness and Emergency Management). Other attendees will include agencies responsible for information dissemination (e.g. Communications Squadron and Command Post). Meetings will address, at a minimum, the following:

7.1.1. Severe weather observing and forecasting capabilities and corresponding user requirements to identify the weather phenomena for which notification is required to include the threshold values and desired lead-times.

7.1.2. Adequacy of dissemination procedures, both primary and backup.

7.1.3. Adequacy of protective action procedures and resources.

7.1.4. Adequacy of severe weather awareness training and exercise procedures.

7.2. Information Dissemination. The Installation Commander will ensure that WFs are required to telephonically contact as few agencies as possible to relay severe weather information. The use of a pyramid-type reporting system should be employed whenever possible and maximum use of technology is encouraged (i.e., use of local notification systems, email) to facilitate the relay of information.

7.3. Exercises. Exercises, tailored to upcoming seasonal severe weather concerns, will be conducted semi-annually. This semi-annual exercise will be conducted with the 26 OWS as well as base EET personnel. The purpose of this exercise is to evaluate the timeliness of notification of personnel and response capability to severe weather events for both on- and off-base agencies to ensure validity of plans to respond to severe weather. These exercises may be integrated with base Comprehensive Emergency Management Plan exercises. Real world severe weather events meet this requirement if properly evaluated and documented, to include lessons learned.

7.4. OPREP-3 Reporting. The WF will submit OPREP-3 reports to the 14 FTW/CP in accordance with AFI10-229; AFI10-206, *Operational Reporting* and Unit Operating Procedures.

7.4.1. When the following significant weather occurs **and** results in damage.

7.4.1.1. Winds 50 knots or greater (to include gusts).

7.4.1.2. Hail ¾ inch or larger.

7.4.1.3. Tornadoes.

7.4.1.4. Lightning strikes.

7.4.1.5. Snow Storms.

7.4.2. An earthquake, flood, volcanic eruption, or any other natural phenomenon that may impair the operational capability of an official Air Force activity.

7.4.3. The WF is responsible for notification of the reported weather event OPREP-3 to the 26 OWS and AETC Functional Manager as soon as is practical.

Chapter 8

SUPPORT TO AND FROM 14 FTW WING STAFF AGENCIES

8.1. 14 FTW Commander. Will chair annual severe weather preparedness meeting as outlined in Chapter 7 of this instruction.

8.2. Command Post.

8.2.1. **Will be provided the following**.

8.2.1.1. Notification of all weather information via JET for dissemination according to this instruction. Telephonic notification will also be made during duty hours to log/ensure receipt of warnings, watches and advisories.

8.2.1.2. Data required for filing of OPREP 3 report after significant weather events or natural disaster as stipulated in Chapter 7 of this instruction.

8.2.1.3. Tropical storm and hurricane forecast advisories from the National Hurricane Center and from the 26 OWS Tropical Cyclone Threat Assessment Product (TC-TAP) every six hours during operational duty hours. These forecasts will be provided only when the potential exists to affect CAFB.

8.2.1.4. JET training to controllers upon request by the command post to the WF Chief.

8.2.2. **Will provide the following support**.

8.2.2.1. Notify agencies with weather information according to this instruction.

8.2.2.2. Recall standby weather personnel when requested to do so by the 26 OWS forecaster.

8.2.2.3. Notify 14 OSS/OSW of all weather-related OPREPs.

8.2.2.4. Upon notification of a tornado warning from the Weather Flight or the 26 OWS, Command Post personnel will sound the base siren in a 3-5 minute steady tone.

8.3. Wing Plans and Programs.

8.3.1. **Will be provided with the following**.

8.3.1.1. Weather Flight representative for the CAT and the Plans Committee.

8.3.1.2. Weather scenarios for wing weather exercises.

8.3.1.3. Deployment personnel ready to fill taskings.

8.3.1.4. Weather information for deployment concept briefs.

8.3.2. **Will provide the following support.**

8.3.2.1. Timely information necessary to develop Deployment Concept Briefings.

8.4. Wing Safety.

8.4.1. **Will be provided with the following**.

8.4.1.1. All applicable weather data for aircraft or ground mishaps.

8.4.1.2. Forecasts, observations, watches, warnings, and advisories upon request or in support of wing plans, via airfield operations notification.

8.4.1.3. Weather representative for aircraft accident investigations.

8.4.2. **Will provide the following support.**

8.4.2.1. Review agencies' severe weather response checklists.

8.4.2.2. Provide representative to give annual weather support feedback.

8.5. Public Affairs.

8.5.1. **Will be provided with the following**.

8.5.1.1. Provide in-station/off-station briefing support upon request.

8.5.2. **Will provide the following support.**

8.5.2.1. Print articles upon request submitted jointly by CE Readiness and Emergency Management and weather personnel in the base newspaper relating to weather education.

Chapter 9

SUPPORT TO AND FROM 14TH OPERATIONS GROUP

9.1. Supervisor of Flying (SOF) (Program belongs to 14 OG/OGV).

9.1.1. **Will be provided with the following**.

9.1.1.1. Synopsis of weather situation before SOF shift begins either face-to-face brief with mission services, or after reviewing the MWP upon assuming the SOF position. In the latter case, the mission services individual will answer any questions telephonically via the SOF hotline.

9.1.1.2. Weather operations capabilities briefing for newly assigned SOFs.

9.1.1.3. Forecasts, observations, watches, warnings, and advisories via JET.

9.1.1.4. Miscellaneous weather information and updates via hotline.

9.1.1.5. A representative to attend quarterly SOF meetings.

9.1.2. **Will provide the following support**.

9.1.2.1. Ensure newly assigned SOFs receive a Weather Flight orientation tour and briefing.

9.1.2.2. Provide charts and figures of training areas, low-levels, air refueling tracks, etc. When there are changes, routes added or deleted, terminology changes, etc.

9.1.2.3. Provide input on plan reviews and provide annual weather support feedback.

9.1.2.4. Provide PIREPs to duty mission services personnel.

9.1.2.5. Provide access for weather personnel to SOF Log for monitoring of PIREPS.

9.2. Airfield Operations.

9.2.1. **Will be provided with the following.**

9.2.1.1. A representative to attend Air Operations Board (AOB) meetings quarterly, or as needed.

9.3. Control Tower.

9.3.1. **Will be provided with the following**.

9.3.1.1. Weather operations orientation, cooperative weather watch certification training, and test. Certification includes: weather phenomena training, weather equipment familiarization, Control Tower visibility requirements, and reporting procedures.

9.3.1.2. MWP via the LAN; TAFs, observations, watches, warnings, and advisories via JET dissemination to the Air Field Automation System (AFAS). **Note**: Warnings for winds will have the expected max wind information appended. In the event that wind or wind gusts are expected to reach or exceed 78 knots, evacuation of the ATC tower must be considered by Tower personnel on duty IAW *CAFB Tower Operating Instruction 13-204*.

9.3.1.3. Meteorological information relayed to the alternate (RSU #2 or #5) Control Tower, if needed (base extension 1220).

9.3.1.4. Provide assistance, if requested, on development and certification of visibility aids.

9.3.1.5. Provide notification of any scheduled/unscheduled JET outages and notification of any upgrades or resetting of weather systems that affect ATC.

9.3.2. **Will provide the following support**.

9.3.2.1. Notify duty mission services personnel of an aircraft mishap at or near Columbus AFB.

9.3.2.2. Provide orientation tour for newly assigned weather personnel.

9.3.3. Cooperative Weather Watch. Report the following for evaluation by weather personnel if not already reported by the Weather Flight:

9.3.3.1. Control Tower visibility: When prevailing visibility is less than 4 statute miles and different from the current surface prevailing visibility by special/local criteria in accordance with AFMAN 15-111. The airfield services individual will then evaluate the weather conditions and backup the observation, if required.

9.3.3.2. Ceiling: raising, lowering, forming, or dissipating.

9.3.3.3. Sighting of thunderstorm, funnel cloud, tornado, or lightning.

9.3.3.4. Precipitation: Begins or ends.

9.3.4. Initiate requests for PIREPs and relay information to the Weather Flight upon request and at other times when pertinent weather data is passed, within 5 minutes of receipt, if air traffic allows.

9.3.5. Notify the Weather Flight of runway changes and expected completion time.

9.3.6. Select appropriate AN/FMQ-19 system (dependent on winds) for the active runway.

9.3.7. Notify the Weather Flight before switching the AN/FMQ-19 system (dependent on winds) to the inactive runway in the event of an outage on the active runway instrument.

9.3.8. Perform a radio check on the PMSV frequency each morning by 1000L.

9.3.9. Notify the Weather Flight for the following:

9.3.9.1. The high intensity runway lights (HIRL) becomes inoperative.

9.3.9.2. The HIRL setting is changed during visibility conditions reported 1 mile or less or runway visual range (RVR) reported as 6,000 feet or less.

9.3.10. Relay all weather warnings, watches, and advisories to airborne crews as part of weather sequence and include it on Automatic Terminal Information Service (ATIS).

9.3.11. Relay wind data to airfield services personnel in the event of a Weather Flight evacuation.

9.4. Radar Approach Control (RAPCON).

9.4.1. **Will be provided with the following**.

9.4.1.1. Weather operations orientation.

9.4.1.2. MWP via the LAN; TAFs, observations, Watches, Warnings, and Advisories via JET dissemination to AFAS. **Note**: Warnings for winds will have the expected max wind information appended. In the event that wind or wind gusts are expected to reach or exceed 85 knots, shutting off of the DASR antenna must be considered by Chief of Maintenance/RAPCON IAW *CAFBI 13-204*.

9.4.1.3. Provide notification of any scheduled/unscheduled JET outages and notification of any upgrades or resetting of weather systems that affect RAPCON.

9.4.2. **Will provide the following support.**

9.4.2.1. In the event of a Weather Flight evacuation, Mission Services personnel and Airfield Services personnel will relocate to RAPCON. Airfield Services personnel will take observations from RAPCON, the first being within 15 minutes of arrival per AFMAN 15-111. Weather personnel will require a desk, telephone, and computer with internet connections. They will normally set up in the RAPCON conference room. Mission Services personnel will make necessary notifications for nearby weather facilities to METWATCH the airfield and training areas. They will also continue to support the flying mission by issuing MWPs and providing MISSIONWATCH support to the flying mission.

9.4.2.2. Notify the duty mission services personnel of an aircraft mishap at or near Columbus AFB.

9.4.2.3. Relay all weather warnings, watches, and advisories to airborne crews as part of weather sequence.

9.4.2.4. Provide orientation tour for newly assigned weather personnel.

9.4.2.5. Provide (workload permitting) a verbal description of radar weather echoes in the vicinity during WSR-88D radar outages. Radar information requests are handled as an additional service IAW FAAH 7110.65.

9.4.2.6. Initiate requests for PIREPs and input data into the AFAS workstation. The WF will then get a visual/aural notification on their AFAS computer that new information is available.

9.5. Airfield Management.

9.5.1. **Will be provided with the following**.

9.5.1.1. Notification of Weather Watches, Warnings, and Advisories via email from the JET system. If they are not receiving these notifications, the duty forecaster will print the WWA and walk it over to the AM Ops counter.

9.5.2. **Will provide the following support**.

9.5.2.1. Relay weather information that poses a flight hazard to transient aircrews if needed.

9.5.2.2. Disseminate weather Watches and Warnings according to this instruction.

9.5.2.3. Provide runway conditions (for use on weather briefings and issuance of crosswind advisories), FLIP updates, NOTAMS, Airfield Advisories.

9.5.2.4. Provide information via the secondary crash net on in-flight and ground emergencies.

9.5.2.5. Notify weather personnel when airfield lighting system (ALS) is non-operational and when it becomes operational after repairs. This will affect the visibility and RVR minimums for category A through E aircraft, as published in the DoD Low and High Altitude Flight Information Publication (Terminal).

9.5.2.6. Upon notification from weather personnel, for PMSV outages over 48 hours, flight service personnel will annotate outage information on Airfield Status Board under local advisories and transmit a local NOTAM. An example NOTAM:

L0123/08 – PILOT TO METRO FREQUENCY 354.6 INOP UFN CONTACT FREQUENCY 287.5 TO REQUEST PHONE PATCH TO DSN7422992. CREATED: DD MMM TIME(Z) YYYY.

9.6. Aircraft Maintenance.

9.6.1. **Will be provided with the following**.

9.6.1.1. Forecasts, observations, Watches, Warnings, and Advisories via JET, and through Command Post dissemination, and atmospheric pressure readings telephonically when requested.

9.6.2. **Will provide the following support.**

9.6.2.1. Upon receipt, relay weather watches, warnings, and advisories to all personnel in the maintenance complex including 14 FTW/MAQ, POL, and T-1, T-6, and T-38 COMBS.

9.6.2.2. Provide a representative to provide annual weather feedback.

9.7. Simulator Maintenance. Will be provided with Lightning Watches and Warnings via Command Post.

9.8. Flying Training Squadrons/Fighter Training Squadron.

9.8.1. **Will be provided with the following**.

9.8.1.1. Forecasts (to include ceiling/visibility forecast for use by the SOF and SUPs), observations, Watches, Warnings, and Advisories via JET.

9.8.1.2. MWPs via the LAN, 26 OWS website, TIMS and SharePoint.

9.8.1.3. Low-level main entry point forecasts for cross-country and out-and-back flights via the MWP.

9.8.1.4. Cross-country briefings, with prior coordination; and mass briefings when manning permits.

9.8.1.5. Air refueling forecasts for cross-country and out-and-back flights via the MWP.

9.8.1.6. PMSV support.

9.8.2. **Will provide the following support**.

9.8.2.1. Provide PIREPS for at least the following conditions in the local area, the training areas, and Gunshy Auxiliary Field, through air traffic control agencies, the squadron common frequency (squadron supervisors) or the SOF.

9.8.2.1.1. Turbulence.

9.8.2.1.2. Icing.

9.8.2.1.3. Tornadic activity.

9.8.2.1.4. Low-level wind shear.

9.8.2.1.5. Ceiling/visibility less than 5,000 feet and 5 miles.

9.8.2.1.6. Precipitation.

9.8.2.1.7. Hail.

9.8.2.2. Provide new mission services personnel a tour and briefing on the operations work area, responsibilities, procedures, and an overview of the training program.

9.8.2.3. Provide a representative from each squadron to provide annual weather feedback.

9.8.2.4. Provide mission feedback through debrief process.

9.8.2.5. For hurricane evacuations, provide all the information needed to prepare weather briefing support to the departing aircrews. Arrange for mass briefings to relay all pertinent weather information to the customer.

Chapter 10

SUPPORT TO AND FROM 14TH MISSION SUPPORT GROUP

10.1. Civil Engineer Squadron.

10.1.1. **Will be provided with the following**.

10.1.1.1. Weather Watches, Warnings and Advisories via Command Post notification.

10.1.1.2. Heating- and cooling-days data monthly, as requested.

10.1.1.3. Notification when 2 inches or more of snow is expected.

10.1.2. **Will provide the following support.**

10.1.2.1. Will ensure that the weather station has backup power at all times.

10.1.3. **Civil Engineer Readiness Flight / Emergency Management.**

10.1.3.1. **Will be provided with the following.**

10.1.3.1.1. A representative from the Weather Flight will be provided to Civil Engineering/Emergency Management to coordinate requirements on an annual basis as well as provide weather data for EM and other ESFs to use to run their chosen CBRNE model. CE/EM will provide a representative to provide requirements to the Weather Flight.

10.1.3.1.2. Upon request, Observations from KCBM; and, Chemical Downwind Messages (CDM) and Effective Downwind Messages (EDM) produced by 26 OWS; sent via e-mail or fax. CE Readiness Flight will provide a runner to pick up observations and CDM or EDM products from the weather flight in the event of e-mail outages and fax outages.

10.1.4. **Will provide the following.**

10.1.4.1. A representative to provide requirements to the Weather Flight.

10.1.4.2. Will ensure installation personnel are educated on the local severe weather threat and applicable protective measures, as well as on purpose, applicability, and operating procedures of the watch-warning system (ref: AFI 10-2501, *Air Force Emergency Management (EM) Program Planning and Operations*).

10.2. Communications Squadron.

10.2.1. **Will be provided with the following.**

10.2.1.1. Weather Watches and Warnings via Command Post.

10.2.1.2. Space weather updates for related communications outages or degradation.

10.2.2. **Will provide the following support**.

10.2.2.1. Maintenance and repair of communications lines in accordance with established restoration priorities.

10.2.2.2. Maintenance and repair of weather sensing equipment in accordance with established restoration priorities.

10.2.2.3. Weather equipment orientation for newly assigned weather personnel upon request.

10.3. Fire Department.

10.3.1. **Will be provided with the following.**

10.3.2. Will be provided with a representative from the Weather Flight to coordinate requirements on an annual basis.

10.3.3. Will be contacted via LMR (Land Mobile Radio) upon the passage of a tornado or upon request, other significant severe weather threat. This notification may be transmitted prior to receipt of weather warning cancellation notification via JET.

10.3.4. It is understood that first responders may request weather information prior to the passage of a weather threat in order to respond to base personnel in need of assistance. It is also understood that the Weather Flight is not responsible for any decision made by the Fire Department to depart shelter prior to the passage of a weather threat, once the Weather Flight has ensured that Fire Department personnel understand the presence of such a threat.

10.3.4.1. **Will provide the following.**

10.3.4.2. A representative to provide requirements to the Weather Flight at least annually.

10.4. Logistics Readiness Division.

10.4.1. Will be provided Watches, Warnings and Advisories via notification through Command Post.

10.4.2. Fuels Dispatch will be provided weather Watches, Warnings and Advisories via JET and Command Post.

10.5. Security Forces Squadron. Will be provided weather Watches and Warnings via notification through Command Post.

10.5.1. It is understood that first responders may request weather information prior to the passage of a weather threat in order to respond to base personnel in need of assistance. It is also understood that the Weather Flight is not responsible for any decision made by Security Forces to depart shelter prior to the passage of a weather threat, once the Weather Flight has ensured that Security Forces personnel understand the presence of such a threat.

10.6. Force Support Squadron (Swimming Pools/Golf Course/Base Fitness Center). Will be provided lightning watches, warnings and advisories via notification through Command Post.

10.6.1. Force Support Readiness Flight will be provided with the following.

10.6.1.1. Weather Watches, Warnings and Advisories via Command Post phone notification.

10.6.1.2. Will ensure Force Support Director, Flight Chief's and facility managers are notified of local severe weather threat and applicable protective measures, as well as purpose, applicability, and operating procedures of the watch-warning system.

10.6.1.3. Will implement agencies' severe weather response checklists as required.

10.6.1.4. Will implement agencies' severe weather reception instruction as required.

10.6.2. Will participate in Severe Weather Readiness exercises as described in Chapter 7 of this instruction.

10.7. Contracting Squadron. Will be provided climatological data, by request, in support of contracts.

Chapter 11

SUPPORT TO AND FROM 14TH MEDICAL GROUP

11.1. Bioenvironmental Engineering. Will be provided with wind chill updates upon request.

Chapter 12

KEY RELATIONSHIPS OUTSIDE 14 FTW

12.1. Weather Radar (WSR-88D) Customers.

12.1.1. The Unit Control Position (UCP) for the WSR-88D is operated by the NWS at Jackson, Mississippi.

12.1.2. Maintenance. The NWS attempts all possible resets of NEXRAD equipment from the UCP. All maintenance will be conducted as outlined in the MOA between National Weather Service (Jackson) and the 14 Communications Squadron.

12.2. 26th Operational Weather Squadron (OWS). Will provide support as outlined in the current Installation Data Sheet between 14 OSS/OSW and the 26 OWS.

Chapter 13

AIRCRAFT AND BASE AGENCIES WEATHER SENSITIVITIES

13.1. Minimum Requirements and Restrictions to Student Solo and Training Flights.

13.1.1. Prevailing Visibility of at least 3SM.

13.1.2. In-flight visibility of at least 5SM.

13.1.3. Crosswind limitations of 15 knots (DRY RWY) and 10 knots (WET RWY) for T-6/T-38 solo fixed-wing qualification students, or formation wing takeoffs and landings.

13.1.4. IR routes must have 1,500-foot ceilings and 3 SM visibility and VR routes must have 3,000-foot ceilings and 5 SM visibility.

13.1.5. T-6 normal overhead traffic pattern and VFR breakout reentry capability with at least a 2,500-foot ceiling. T-38s normal overhead traffic pattern and VFR breakout reentry capability must be at least 2,800 foot ceiling. Solo students may not fly in a restricted overhead.

13.1.6. Lightning Watch: solos are brought back to local patterns.

13.1.7. Lightning Warning: aircraft hold or divert. Aircraft on the ground can taxi but not park. All outdoor activity stops.

13.1.8. Freezing Precipitation: *all* flying cancelled.

13.1.9. Low Level Wind Shear/Turbulence: SOF will determine T-38 restrictions.

13.2. T-38/T-38C (43rd/49th/50th FTS) Weather Thresholds. Operating thresholds for T-38/T-38C aircraft are listed below. **Note**: the T-38/T-38Cs are very sensitive to upper flight level temperature forecasts during Functional Check Flights. The temperature determines the minimum allowable mach speed for these flights. A two degree error may cause compressor stall or flameout. The upper level temperature forecast is also used to determine the minimum allowable mach speed for supersonic flights. This table is not available electronically, but may be found in T-38/T-38C T.O.s.

Table 13.1. Ceiling/Visibility Thresholds.

5,000/ 5	Solos may penetrate a ceiling less or equal to 2,000 foot thick
3,300/ 5	Pattern Solo (with an In-Flight visibility of 5 miles)
2,800/3	Dual
2,000/ 3	Restricted Overhead
1,500/ 3	Alternate not required
1,100/ 3	Circling Minimums
500 /1 1/2	Formation Landings
300/ 1	Minimum for takeoff

Table 13.2. Crosswind Thresholds.

	No solo student operations when ice/standing water reported on runway

10kt crosswind component	
15kt crosswind component	No solo student operations, takeoff & land procedures
20kt crosswind component	No takeoff and landing on wet runway
25kt crosswind component	No touch and go on wet runway
30kt crosswind component	No takeoff/full stop even on dry runway

Table 13.3. Icing Thresholds.

Forecast Light Rime	May climb/descend through but not cruise in
Observed icing conditions	Climbs/descends/cruising prohibited through known, forecast or reported icing conditions more severe than light rime

13.3. T-1 (48th/43rd FTS) Weather Thresholds. Operating thresholds for T-1 aircraft are listed below.

13.3.1. Turbulence. T-1 aircraft will not fly in forecasted or reported severe turbulence.

13.3.2. Icing. See Table 12.7 below for the effects of icing on T-1 aircraft.

Table 13.4. Ceilings/Visibility Thresholds for Takeoffs and Landings.

700 feet AGL/2 miles or approach minimums whichever is higher	CAT 3
500 feet AGL/1½ miles or approach minimums whichever is higher	CAT 2
300 feet AGL/1 mile (RVR 5,000) or approach minimums whichever is higher	CAT 1

Table 13.5. Weather Impacts for Team Sorties.

3000/3miles	Ceiling must be less than 2,000 feet thick, no alternate required
16kt crosswind	Prohibits takeoffs, landings, and touch and go's

Table 13.6. Crosswind Thresholds.

10kt crosswind component	**Limits operations when ice/standing water reported on runway**
15kt crosswind component	Wet runway only
25kt crosswind component	Dry runway

Table 13.7. Icing Impact on T-1 Operations.

Moderate Icing	Will not continue to cruise or do multiple patterns operations
Severe Icing	Will not fly in forecast or reported severe icing

Table 13.8. Air Refueling Weather Limits to Operations.

Before Pre-contact	Up to moderate turbulence
Pre-contact & Contact	Cloud free with 1 mile visibility and light turbulence

13.4. T-6 (37th/41st/43rd) Weather Thresholds. Operating thresholds for T-6 aircraft are listed below.

13.4.1. Turbulence. The T-6 airframe cannot operate in areas with severe turbulence.

13.4.2. Cloud-free layer. For optimal training, the T-6 needs at least 10,000 feet cloud-free layer but can complete some training operations with 7,000 feet cloud free layer.

13.4.3. Steady State Winds. Local training flights are not permitted over land when steady state surface winds (forecast or actual) in training or operating areas exceed 35 knots.

Table 13.9. Ceiling/Visibility Thresholds during Takeoffs and Landings.

Suitable published minimums (Home Station)	CAT 1 & 2
300 feet AGL/1 mile (RVR 5,000) or approach minimums whichever is higher (Off Station)	CAT 2
Suitable published minimums (Off Station)	CAT 1

Table 13.10. Ceiling/Visibility Thresholds During Pattern/MOA Sorties.

Unrestricted	Full use of all patterns and areas, both dual and solo flying
2,500/ 3	Wing solo: minimum in-flt vis 5 miles/contact solos stay in Sunfish pattern Pattern solo: minimum in-flt vis 5 miles/all solos stay in Sunfish pattern Dual: no solos
2,100/3	Restricted overhead: to enter pattern from radar entry points, alternate not required
2,000/3	Restricted overhead: for low key
1,500/ 3	Restricted overhead Contact Recoveries: Tower controls pattern, max of 6 aircraft in pattern VFR Straight-in
700/ 1¾	IFR recoveries: RWY 31L, VOR/DME-B or GPS-F
700/ 1¼	IFR recoveries: RWY 13R, VOR/DME-A or GPS-E
300/1	Slots: RWY 13C/31C, ILS

Table 13.11. Crosswind Thresholds.

5kt crosswind component	Limits operations when ice or wet runway with standing water reported
10kt crosswind component	Limits operations when water reported on runway or wet with outside ponding
15kt crosswind component	No solo operations/formation wing takeoff and landing
20kt crosswind component	No Touch and go landings
25kt crosswind component	No operations

Table 13.12. Icing Thresholds.

Any Trace	May plan to hold or cruise in forecast trace icing, but anytime icing is actually encountered or reported, must change aircraft course and/or altitude immediately to avoid prolonged flying in icing conditions.
Light Rime	May climb/descend through a 5000' band of light rime icing, but not cruise in or hold in any icing greater than Trace.
Any Mixed or Clear	No flying at affected levels
Any Moderate or Severe	No flying at affected levels

13.5. Flightline Temperature Sensitivities. Refer to AFI 11-418, *Operations Supervision*, AETC Sup 1, and Columbus AFB Sup for the latest Wind Chill Index (WCI) and the latest Fighter Index of Thermal Stress (FITS).

13.6. Ground Operations. Tables describe weather operational thresholds to ground operations.

Table 13.13. Aircraft Maintenance.

Threshold	**Impact**	**Customer Action**
Lightning Watch	Lead time needed to react to storm approach	Flight line prepares for storm impact
Lightning Warning	No outside/flight line activity	Personnel take cover
Hail (1/4" or greater)	Possible aircraft damage	Cover wings/ hangar aircraft
Tornado Watch/ Warning	Possible aircraft damage	**Tie down/ hangar aircraft
Damaging Winds > 50 kts	Possible aircraft damage	**Cover wings/ hangar aircraft
Strong Winds 35-49 kts	Possible aircraft damage	**Cover wings/ hangar aircraft
Snow Accumulation	Limits ability to perform certain types of maintenance/support	Cease maintenance/ support unless directed
Freezing Precipitation	Possible aircraft damage	**Cover wings/ hangar aircraft
Note: 14 FTW/MX will coordinate with the 14 OG/CC to determine hangar requirements.		

Table 13.14. Data Automation.

Threshold	**Impact**	**Customer Action**
Lightning Warning	Computer operations halted	Shutdown computers as required

Table 13.15. Civil Engineering.

Threshold	Impact	Customer Action
Snowfall 2" or greater	Hazardous streets & runways	Base closure
Freezing precipitation	Hazardous streets & runways	Base closure
Rainfall 2" or greater	Water damage	Remove equipment from low areas
Lightning Watch/Warning	Shuts down outdoor ops	Cease outdoor activity
Tornado Watch	Damage to property	Secure loose objects; seek shelter as necessary
Winds > 35 kts	Damage to property	Secure loose objects; seek shelter as necessary
Hail (1/4" or greater)	Damage to property	Seek shelter
Tornado Warning	Work stoppage in some work centers	Prepare for emergency operations
Damaging Winds ≥ 50 knots	Work stoppage or reduced service in some work centers	Evacuate various buildings
Temperature < 32°F	Reduced services in some work centers so notifications can be made	Notify all building and housing occupants of an extended freeze

Table 13.16. Services Division.

Threshold	Impact	Customer Action
Lightning Warning	Possible loss of life	Personnel take cover
Tornado Watch/ Warning	Injury/Death/Property Damage	Personnel take cover; secure loose objects outside
Winds > 35 kts	Damage to property	Secure loose objects
Hail (1/4" or greater)	Damage to property/personnel	Seek shelter

Table 13.17. Maintenance Operations Center.

Threshold	Action	Impact
Tornado Warning	Stop work immediately and seek shelter	Stops maintenance operations.
Damaging Winds >50 knots	Secure all aircraft on parking apron. Close all hangar doors and clear unnecessary and loose items from flightline area.	**Stops flying operations. Maximum loss of personnel from regular duties, and severely restricts maintenance operations. (**See Note)
Winds >70 knots	Hangars do not provide adequate protection. Wing CC may direct evacuation of aircraft.	**Stops flying operations. Maximum loss of personnel from regular

		duties, and severely restricts maintenance operations. (**See Note)
Strong Winds 35-49 knots	Secure T-6, T-38 and T-1 aircraft on parking apron. Ensure personnel "hand assist" opening and closing canopies. Close doors and clear unnecessary Flight Line Support Equipment (FLSE) items from parking area. Check that powered and non powered FLSE are secured and brakes are set.	**Slows flying and maintenance operations. (**See Note)
Winds 30-34 knots	Close hangar doors. Ensure unnecessary FLSE is cleared off flight-line and aircraft parking areas.	May slow maintenance operations
Damaging Hail ¾ inch or greater	Maximum hangaring of T-6 and T-38 aircraft. Remaining T-38 will have protective wing covers installed and be parked under available shelters. Secure remaining aircraft on parking apron. Close hangar doors, remove AGE from parking areas	**Stops flying operations. Maximum loss of personnel from regular duties, and severely restricts maintenance operations. (**See Note)

Table 13.18. Maintenance Operations Center Continued.

Lightning within 5 NM	Cease refuel/defuel operations and fuel cell maintenance, LOX and oxygen servicing operations, explosives and egress maintenance. Cease test cell engine runs. (Maintenance may continue.) Cease flightline activities and take cover immediately.	**Stops flying operations. Maximum loss of personnel from regular duties, and severely restricts maintenance operations. (**See Note)
Temp ≥ 90 F	Open T-6 canopies (sheltered or unsheltered). Open Unsheltered T-38 canopies	May slow maintenance operations.
Temp ≥ 99 F	Open Sheltered T-38 canopies.	May slow maintenance operations.
Wind Chill Observed ≤ 15 F °	Take protective measures against colder temperatures	May slow maintenance operations
2 inches of rain in 12 hours	Tow aircraft from low areas to high ground	**Slows flying operations. Maximum loss of

		personnel from regular duties, severely restricts maintenance operations.
Note: 14 FTW/MX will coordinate with the 14 OG/CC to determine impact on flying ops.		

Table 13.19. Communications Center.

Threshold	Action	Impact
Thunderstorms/Lightning w/in 5 nm	Shut down systems and exercise caution	Lost products
Thunderstorms/Lightning w/in 10 nm	Begin to shut down on-line users and storage memory	Lost products
Thunderstorms/Lightning w/in 25 nm	Notify users of probable shutdown of on-line users	Lost products
Tornado Warning	Secure classified	Working with classified suspended

Table 13.20. Air Traffic Control – Tower.

Threshold	Action	Impact
Tornado Warning	Evacuate Control Tower	Loss of ATC services
Damaging Winds ≥ 50 knots	Evacuate Control Tower (≥78 knots)	Loss of ATC services

Table 13.21. Air Traffic Control – RAPCON.

Threshold	Action	Impact
Thunderstorms/Lightning	Generator will auto-start in commercial power failure	None
Tornado	Monitor Control Tower frequency	Loss of personnel's time while monitoring
Damaging Winds ≥ 50 knots	Monitor Control Tower frequency	Loss of personnel's time while monitoring
Wind observed (to include gusts) ≥ 85 knots	Recommend placement of radar antennas in free rotation/shut-off	Loss of radar for air traffic control. Maintenance will not stop DASR until OPS confirms aircraft secured

Table 13.22. 14th Medical Group.

Threshold	Action	Impact
Thunderstorms/Lightning w/in 5 nm	Secure station	Could interfere with fire and crash response
Thunderstorms/Lightning w/in 25 nm	Secure station	Could interfere with fire and crash response

Wind ≥ 35 knots	Secure station	Could interfere with fire and crash response
Hail > ¼ inch	Secure station	Could interfere with fire and crash response

Table 13.23. Commissary Service.

Threshold	Action	Impact
Thunderstorms/Lightning w/in 15 nm	Power down computers and switch to back-up power	Temporary loss of services and man-hours during switch

Table 13.24. Fuels Management.

Threshold	Action	Impact
Thunderstorms/Lightning w/in 5 nm	Cease refueling operations	Lost sorties
Thunderstorms/Lightning w/in25 nm	Prepare to cease refueling operations	None
Wind ≥ 35 knots	Secure all loose items outside facilities, park refueling equipment in protected areas and group vehicles together	Lost sorties
Hail > ¼ inch	Secure all loose items outside facilities, park refueling equipment in protected areas and group vehicles together	Lost sorties

Table 13.25. Fire Department.

Threshold	Action	Impact
Thunderstorms/Lightning w/in 5 nm	Secure station	Could interfere with fire and crash response
Thunderstorms/Lightning w/in 25 nm	Secure station	Could interfere with fire and crash response
Wind ≥ 35 knots	Secure station	Could interfere with fire and crash response
Hail > ¼ inch	Secure station	Could interfere with fire and crash response

Table 13.26. Security Forces.

Threshold	Action	Impact
Tornado warning	Officer safety is paramount. Patrols will exercise due caution during response.	May negatively impact patrol response.

Damaging Winds ≥ 50 knots	Officer safety is paramount. Patrols will exercise due caution during response.	May negatively impact patrol response.
Damaging Hail ≥ ¾ inch	Officer safety is paramount. Patrols will exercise due caution during response.	May negatively impact patrol response.

Table 13.27. Swimming Pool/Golf Course.

Threshold	Action	Impact
Thunderstorms/Lightning w/in 5 nm	Evacuate pool and golf course	No swimming or golfing
Tornado warning/Wind ≥ 50 knots and or any hail	Evacuate pool and golf course	No swimming or golfing

JAMES R. SEARS, JR., Colonel, USAF
Commander, 14th Flying Training Wing

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

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Abbreviations and Acronyms

ACC—Air Combat Command

AFAS—Airfield Automation System

AFW—WEBS—Air Force Weather Web Services

AMOS—Automatic Meteorological Observing System

AOC—Air and Space Operations Center

AOL—Alternate Operating Location

AR—Air Refueling

ATC—Air Traffic Control

CAC—Common Access Card

CAFB—Columbus Air Force Base

CAT—Crisis Action Team

C2—Command and Control

COOP—Continuity of Operations Procedures

DAM—Daily Aircraft and Maintenance Meeting

EWO—Emergency War Order

FLIP—Flight Information Publication

FTS—Flying Training Squadron

FTW—Flying Training Wing

GPS—Global Positioning System

IAW—In Accordance With

ICG—Icing

IFM—Integrated Flight Management

INS—Inches of Mercury

IP—Instructor Pilot

IR—Instrument Route

IRC—Instrument Refresher Course

JAAWIN—Joint Air Force & Army Weather Information Network

JET—Joint Environmental Toolkit

JMO—Joint Meteorological and Oceanographic Officer

KCBM—Federal Aviation Administration Identifier for the Columbus AFB airfield

LAN—Local Area Network

LMR—Land Mobile Radio

LWU—Lead Weather Unit

MEFP—Mission Execution Forecast Process

METAR—Aerodrome Routine Meteorological Reports

METOC—Meteorological and Oceanographic

METWATCH—Meteorological Watch

MOAF—Military Operating Area Forecast

MSL—Mean Sea Level

MWP—Mission Weather Product

NM—Nautical Miles (1 NM is approximately 6,076 feet)

NOTAM—Notice to Airmen

NWS—National Weather Service

OG—Operations Group

OPREP—Operational Reporting

OSS—Operations Support Squadron

OSW—Weather Flight

OWS—Operational Weather Squadron

PA—Public Affairs

PIREP—Pilot Report

PMSV—Pilot-to-Metro-Service

QA—Quality Assurance

RAPCON—Radar Approach Control

RDA—Radar Data Acquisition

RLIM—Reason for Category Level Limitation

RM—Risk Management

RVR—Runway Visual Range

SAR—Support Assistance Request

SOF—Supervisor of Flying

SOP—Standard Operating Procedure

SM—Statute Miles (1 SM is approximately 5,280 feet)

SPECI—Aerodrome Special Meteorological Reports

SUP—Flying Training Squadron Supervisor of Flying

SWAP—Severe Weather Action Procedures

SWAT—Severe Weather Action Team

TACC—Tactical Airlift Command Center

TAF—Terminal Aerodrome Forecast

TDAU—Terminal Data Acquisition Unit

TIMS—Training Integration Management System

TSTMS—Thunderstorms

TURB—Turbulence

UHF—Ultra High Frequency

UA—Upper Air

USSTRATCOM—United States Strategic Command

UUA—Urgent Upper-Air

VIPSAM—Very Important Person Special Airlift Mission

VR—Visual Route

WF—Weather Flight

WS—Weather Squadron

WWA—Watch, Warning, Advisory

Terms

Basic Weather Watch (BWW)—The method of taking surface weather observations, wherein the official point for weather observations on the airfield is co-located with the forecasting function in the Base Weather Station and airfield services personnel are required to perform duties in addition to observing weather.

Ceiling—The lowest layer aloft reported as broken or overcast or the vertical visibility into an indefinite ceiling. If the sky is totally obscured, the vertical visibility will be the ceiling.

Weather Flight (WF)—An umbrella term covering any military weather organization tailoring operational and strategic level weather products and providing decision-quality environmental information for an operational user's military decision-making processes.

Cooperative Weather Watch—A method of assisting airfield services personnel in performing basic weather watch, wherein air traffic control personnel, as priorities permit, notify airfield services personnel of significant differences from the reported conditions.

Gusts—Maximum wind speed observed during the 10-minute observational period indicated by rapid fluctuations in wind speed with a variation of 10 knots or more between peaks and lulls.

Meteorological Watch (METWATCH)—A deliberate process for monitoring terrestrial weather or the space environment in an area or region. The purpose of a METWATCH is to identify when and where observed conditions significantly diverge from forecast conditions and determining courses of action to update or amend a forecast product or group of products and notify designated agencies. A Terminal METWATCH is conducted for a specific aerodrome. This type of METWATCH is normally carried out by a Combat Weather Team that is located at that terminal and is providing direct observing and (or) forecasting services, such as Advisories, Watches, and Warnings.

MISSIONWATCH—A deliberate process for monitoring terrestrial weather or the space environment for specific mission-limiting environmental factors. The MISSIONWATCH process identifies and alerts decision-makers to changes affecting mission success. The different types of MISSION WATCH include the following.

a. Area MISSION WATCH—Conducted for flying areas, auxiliary fields, and alternate fields.

b. Flight MISSION WATCH—Conducted for specific flights. For example: A specific "out-and-back" flight or a VIP flight.

c. Terminal METWATCH—Conducted for a specific terminal, normally by a Combat Weather Team that is located at that terminal and is providing direct observing and (or) forecasting services, such as advisories, watches, and warnings.

d. Route MISSION WATCH—Conducted for the specific routes of missions.

Pilot Report (PIREP)—A report from an aircrew member of weather conditions experienced during flight.

Pilot-To-Metro-Service (PMSV)—A method to provide weather support directly to aircrews requesting service over the prescribed radio frequency.

Thunderstorm—A local storm produced by a cumulonimbus cloud that is accompanied by lighting and/or thunder.

Attachment 2

MISSION WEATHER PRODUCT EXAMPLE.

COLUMBUS AFB MISSION WEATHER PRODUCT

THIS PRODUCT IS THE LEGAL CAFB OPERATIONAL FORECAST

CALL 14TH OSS/OSW AT DSN 742-2970 OR COMMERICAL (662) 434-2970 OR 1-800-982-4257 #6 FOR AN UPDATE

DATE:	25-Sep-2013
VALID TIME:	1300Z - END OF FLYING
FORECASTER:	SrA Schon
MWP #	25C

COLUMBUS AFB LOCAL FORECAST

TIME (LOCAL & ZULU)		WIND DATA DIR	SPEED	GUST	CROSS WINDS	VISIBILITY (SM)	TEMPO	WEATHER	TEMPO	CLOUD LEVELS	TEMP (°C)	ALSTG	PA (FT)	TEMPO / REMARKS
0600L	1100Z													
0700L	1200Z													
0800L	1300Z	VRB	5			3		BR		OVC006	20 °C	29.80	+338	
0900L	1400Z	VRB	5			5		BR		OVC008	21 °C	29.79	+348	
1000L	1500Z	VRB	6			7				OVC015	22 °C	29.78	+358	
1100L	1600Z	310	7			7				BKN015	24 °C	29.77	+368	
1200L	1700Z	300	7			7				SCT020	26 °C	29.77	+368	
1300L	1800Z	290	8			7				SCT020	27 °C	29.77	+368	
1400L	1900Z	310	8			7				SCT020	28 °C	29.75	+388	
1500L	2000Z	310	8			7				SCT030	28 °C	29.74	+398	
1600L	2100Z	320	7			7				SCT040	28 °C	29.73	+408	
1700L	2200Z	320	7			7				SCT040	27 °C	29.73	+408	
1800L	2300Z	320	7			7				SCT050	26 °C	29.75	+388	
1900L	0000Z	330	7			7				SCT050	25 °C	29.76	+378	
2000L	0100Z	VRB	6			7				FEW050	23 °C	29.77	+368	
2100L	0200Z	VRB	5			7				FEW050	22 °C	29.79	+348	
2200L	0300Z	VRB	5			7				FEW050	21 °C	29.80	+338	
2300L	0400Z	VRB	5			7				FEW050	19 °C	29.81	+328	

WEATHER LEGEND (CIG/VIS) / RISK FACTOR BASED ON 14 FTW ACFT TAKE-OFF/LANDING WX SENSITIVITIES	LOW RISK	MOD RISK	HIGH RISK
	CEILING > 3,000 FT VISIBILITY > 3 MILES	CEILING > 1,500 FT BUT ≤ 3,000 FT VISIBILITY > 1 MILE BUT ≤ 3 MILES	CIG ≤ 1,500 FT VIS ≤ 1 MILE TSTM ON STN

CAFB WWA'S	
WATCH	
WARNING	
ADVISORY	
GUNSHY WWA'S	
WATCH	
WARNING	
ADVISORY	

PATTERN WINDS				
SFC	1,000 FT	3,000 FT	5,000 FT	10,000 FT
VRB @ 5kt	*320 @ 5kt*	*320 @ 5kt*	*270 @ 10kt*	*300 @ 25kt*

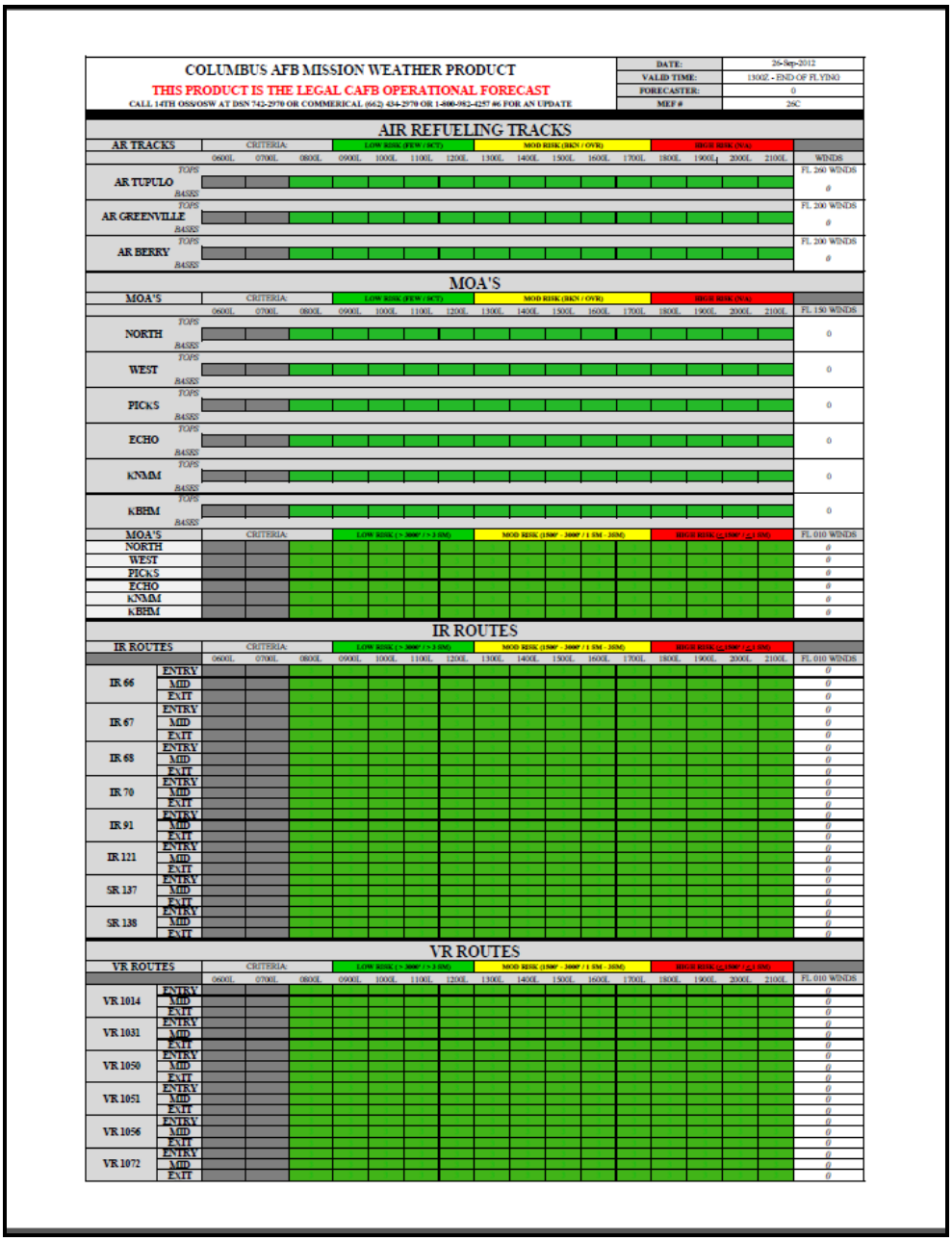
CLIMB WINDS (Average between each level)				
HEIGHT	5,000 FT	10,000	15,000 FT	20,000 FT
WINDS	*310 @ 5kt*	*290 @ 10kt*	*290 @ 15kt*	*290 @ 15kt*
DELTA - T	*10 °C*	*14 °C*	*18 °C*	*18 °C*

How are we doing? Feedback?

MISC DATA		COLUMBUS AFB SOLAR/LUNAR DATA (ALL TIMES LOCAL)						SPACE WEATHER IMPACTS	
Fighter Index of Thermal Stress (FITS)	NORMAL	BEGIN NAUT TL: (L)	0551	SUNSET: (L)	1846	MOONRISE: (L)	2307	UHF	UNLIKELY DEGRADATION
FREEZING LEVEL:	15,891 ft	BEGIN CIV TL: (L)	0619	END CIV TL: (L)	1911	MOONSET: (L)	1234	HF	UNLIKELY DEGRADATION
-50°C HEIGHT	FL 390	SUNRISE: (L)	0644	END NAUT TL: (L)	1940	ILLUM: (%)	68%	GPS	UNLIKELY DEGRADATION

26th OWS	WEATHER FLIGHT WEBSITE	OTHER IMPACTS
https://ows.barksdale.af.mil/	*http://columbusweb/og/weather/new/Viewer/PILOT%20Viewer.htm*	*N/A*

MWP Example Page 1.



COLUMBUS AFB MISSION WEATHER PRODUCT

THIS PRODUCT IS THE LEGAL CAFB OPERATIONAL FORECAST

CALL 14TH OSS/OSW AT DSN 742-2970 OR COMMERICAL (662) 434-2970 OR 1-800-982-4257 #6 FOR AN UPDATE

DATE:	26-Sep-2012
VALID TIME:	1300Z - END OF FLYING
FORECASTER:	0
MEF #	26C

AIR REFUELING TRACKS

AR TRACKS		CRITERIA:		LOW RISK (FEW / SCT)				MOD RISK (BKN / OVR)				HIGH RISK (VA)				
		0600L	0700L	0800L	0900L	1000L	1100L	1200L	1300L	1400L	1500L	1600L	1700L	1800L	1900L	2000L	2100L	WINDS
AR TUPULO	TOPS																	FL 260 WINDS
	BASES																	0
AR GREENVILLE	TOPS																	FL 200 WINDS
	BASES																	0
AR BERRY	TOPS																	FL 200 WINDS
	BASES																	0

MOA'S

MOA'S		CRITERIA:		LOW RISK (FEW / SCT)				MOD RISK (BKN / OVR)				HIGH RISK (VA)				
		0600L	0700L	0800L	0900L	1000L	1100L	1200L	1300L	1400L	1500L	1600L	1700L	1800L	1900L	2000L	2100L	FL 150 WINDS
NORTH	TOPS																	0
	BASES																	
WEST	TOPS																	0
	BASES																	
PICKS	TOPS																	0
	BASES																	
ECHO	TOPS																	0
	BASES																	
KNMM	TOPS																	0
	BASES																	
KBHM	TOPS																	0
	BASES																	

MOA'S	CRITERIA:		LOW RISK (> 3000' / > 3 SM)				MOD RISK (1500' - 3000' / 1 SM - 3SM)				HIGH RISK (< 1500' / < 1 SM)					FL 010 WINDS
	0600L	0700L	0800L	0900L	1000L	1100L	1200L	1300L	1400L	1500L	1600L	1700L	1800L	1900L	2000L	2100L	
NORTH																	0
WEST																	0
PICKS																	0
ECHO																	0
KNMM																	0
KBHM																	0

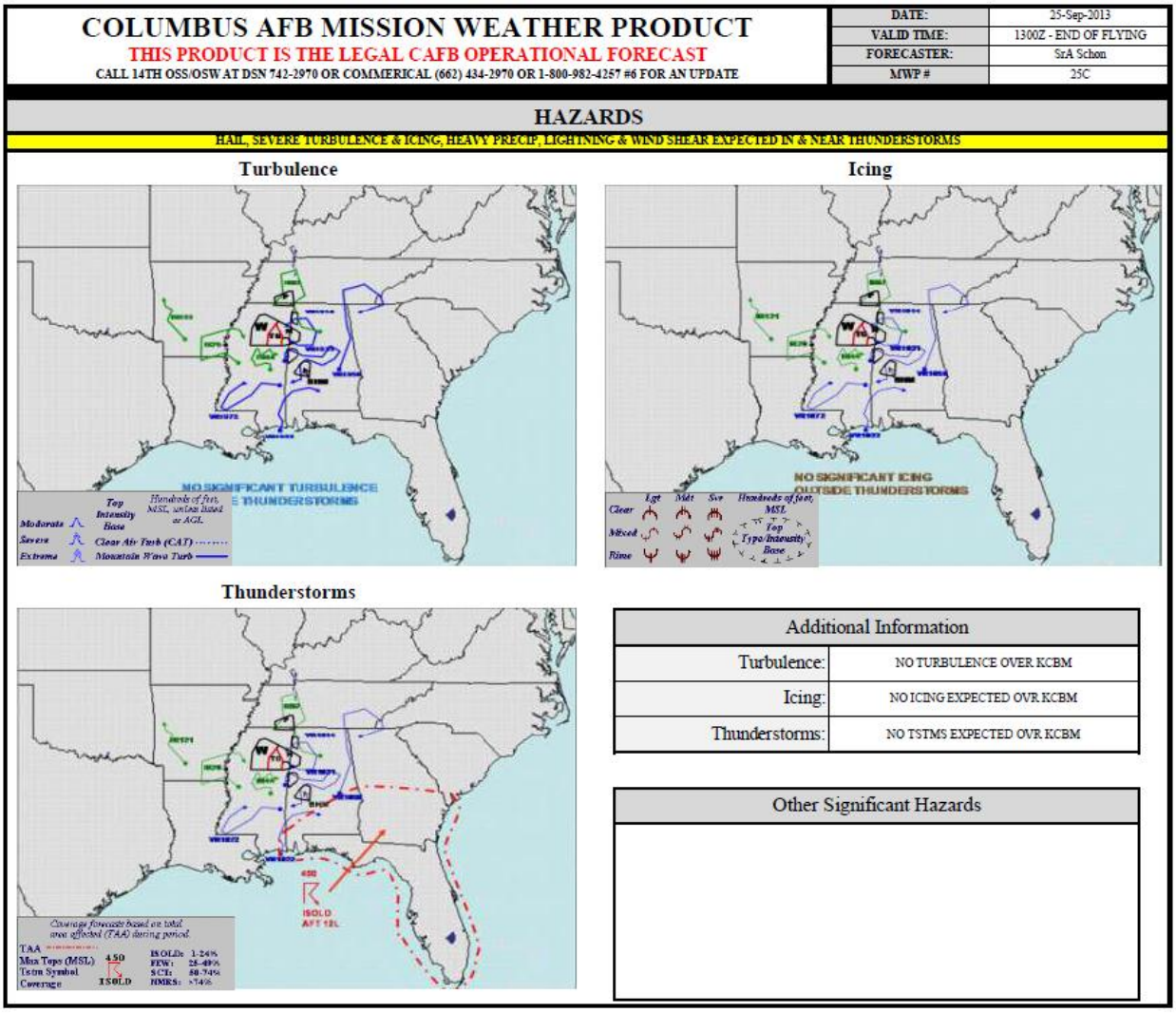
IR ROUTES

IR ROUTES		CRITERIA:		LOW RISK (> 3000' / > 3 SM)				MOD RISK (1500' - 3000' / 1 SM - 3SM)				HIGH RISK (< 1500' / < 1 SM)					
		0600L	0700L	0800L	0900L	1000L	1100L	1200L	1300L	1400L	1500L	1600L	1700L	1800L	1900L	2000L	2100L	FL 010 WINDS
IR 66	ENTRY																	0
	MID																	0
	EXIT																	0
IR 67	ENTRY																	0
	MID																	0
	EXIT																	0
IR 68	ENTRY																	0
	MID																	0
	EXIT																	0
IR 70	ENTRY																	0
	MID																	0
	EXIT																	0
IR 91	ENTRY																	0
	MID																	0
	EXIT																	0
IR 121	ENTRY																	0
	MID																	0
	EXIT																	0
SR 137	ENTRY																	0
	MID																	0
	EXIT																	0
SR 138	ENTRY																	0
	MID																	0
	EXIT																	0

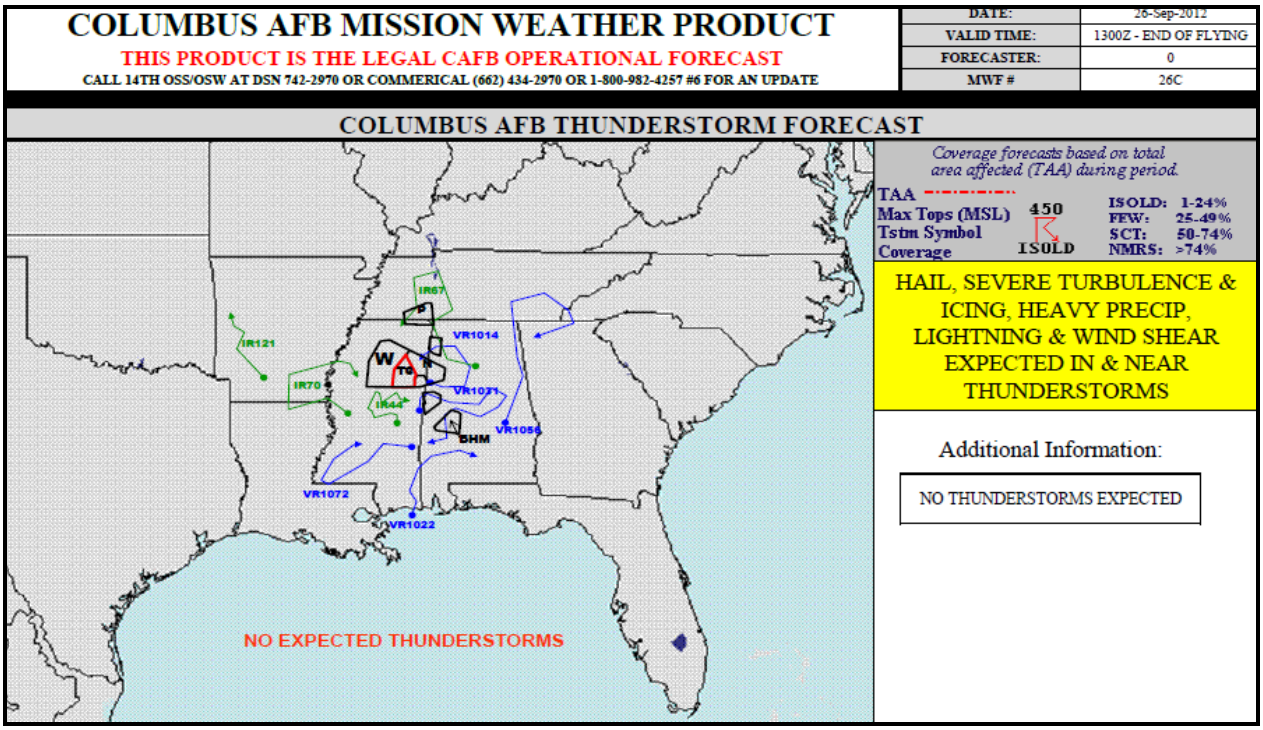
VR ROUTES

VR ROUTES		CRITERIA:		LOW RISK (> 3000' / > 3 SM)				MOD RISK (1500' - 3000' / 1 SM - 3SM)				HIGH RISK (< 1500' / < 1 SM)					
		0600L	0700L	0800L	0900L	1000L	1100L	1200L	1300L	1400L	1500L	1600L	1700L	1800L	1900L	2000L	2100L	FL 010 WINDS
VR 1014	ENTRY																	0
	MID																	0
	EXIT																	0
VR 1031	ENTRY																	0
	MID																	0
	EXIT																	0
VR 1050	ENTRY																	0
	MID																	0
	EXIT																	0
VR 1051	ENTRY																	0
	MID																	0
	EXIT																	0
VR 1056	ENTRY																	0
	MID																	0
	EXIT																	0
VR 1072	ENTRY																	0
	MID																	0
	EXIT																	0

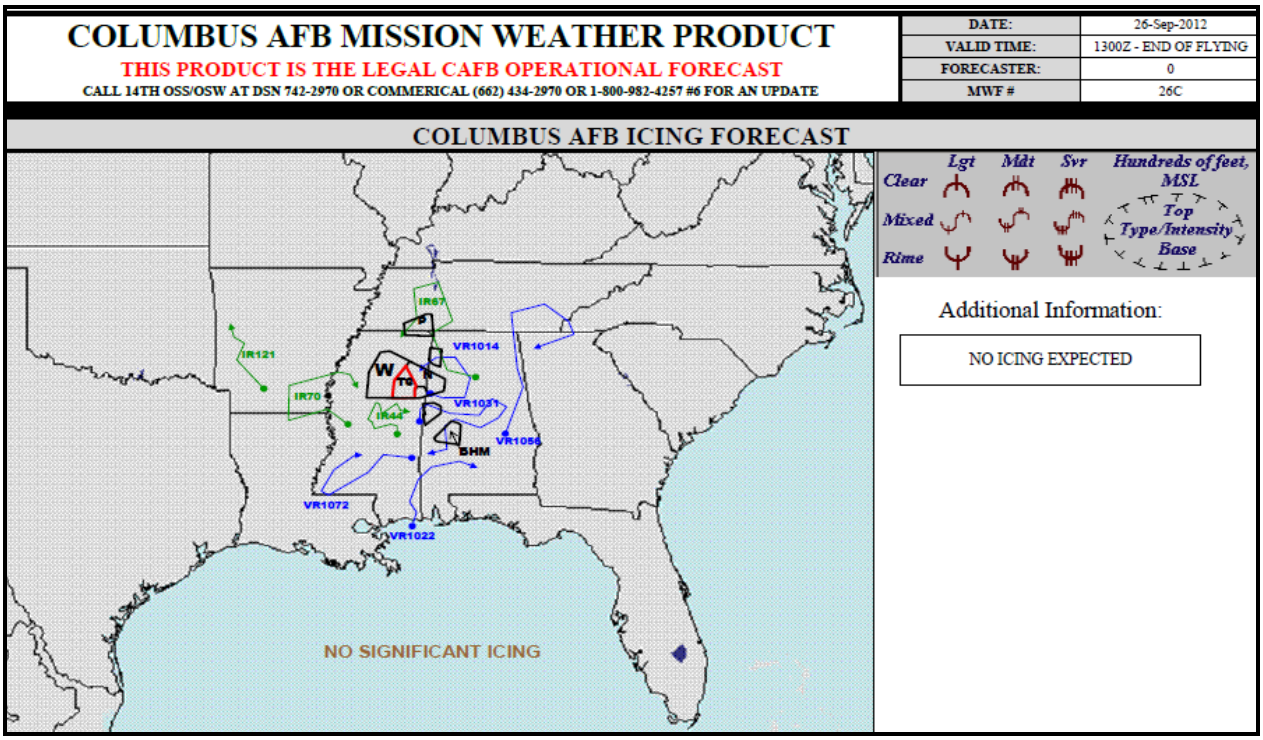
MWP Example Page 2.



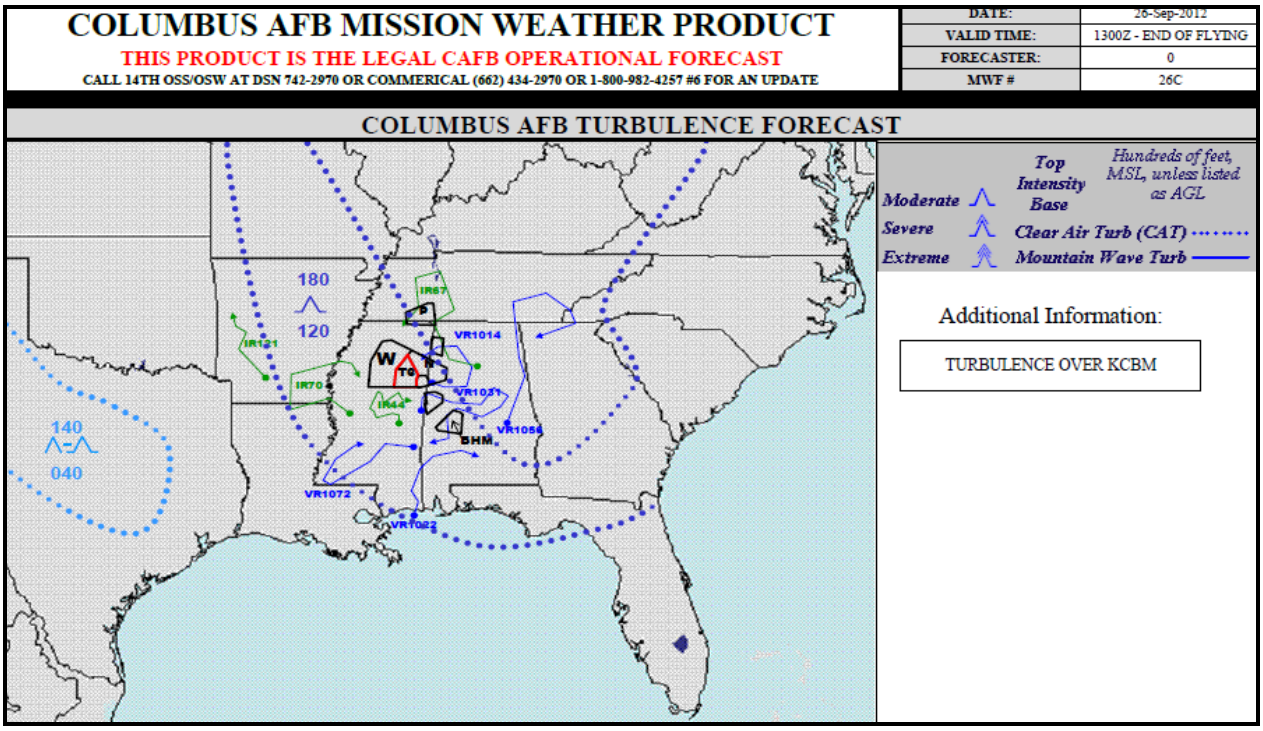
MWP Example Page 3.



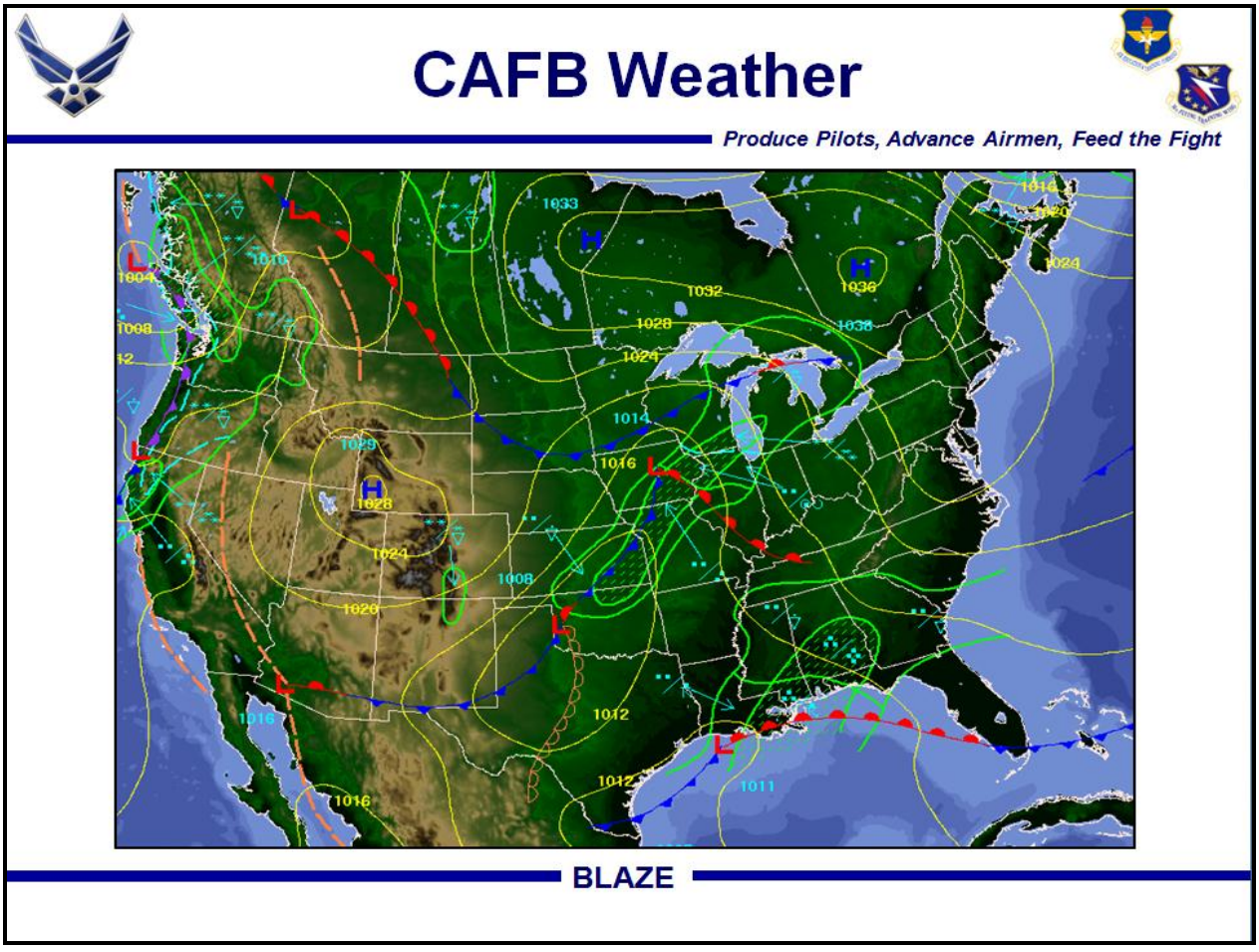
MWP THUNDERSTORMS GRAPHIC.

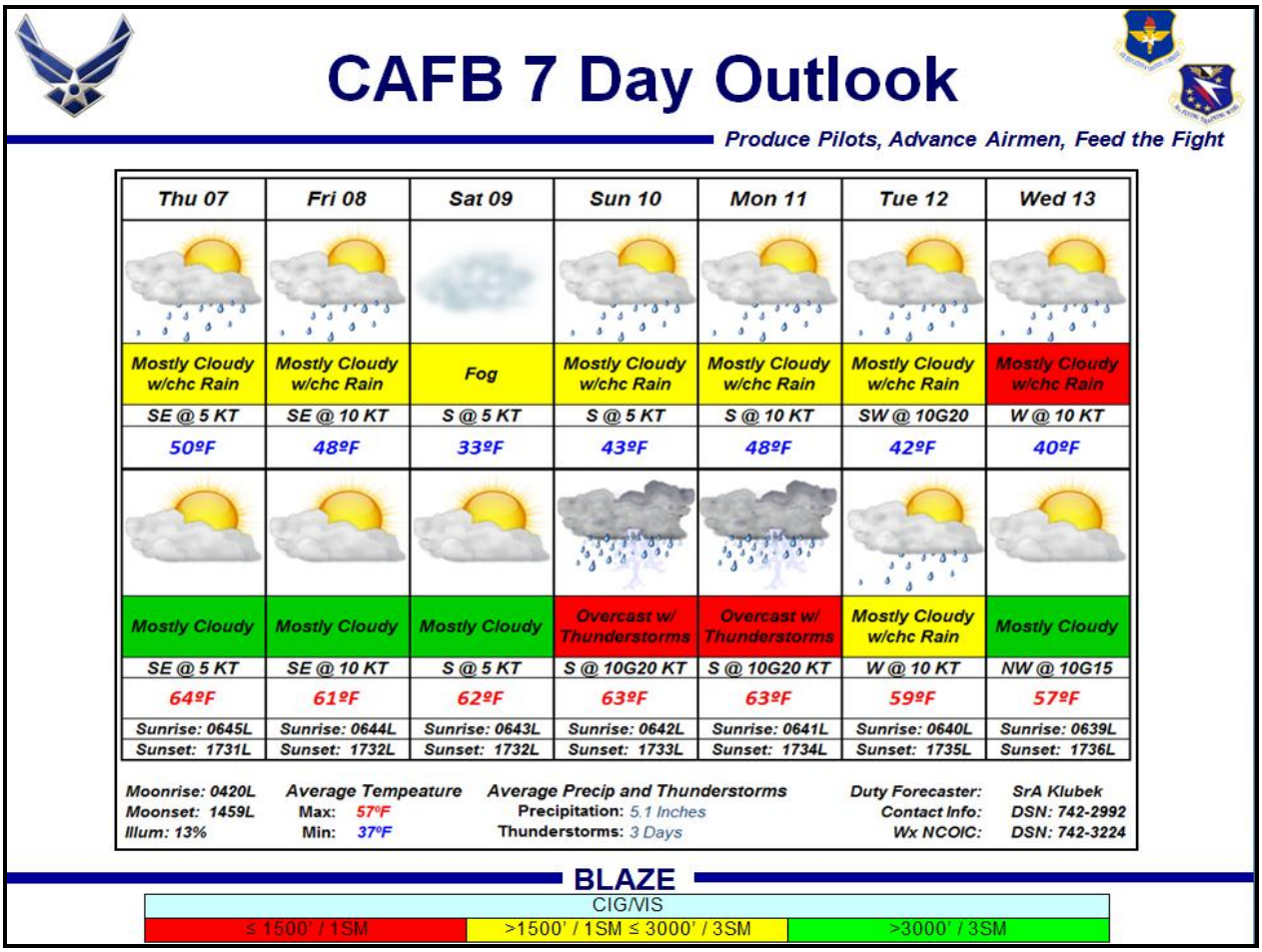


MWP ICING GRAPHIC.

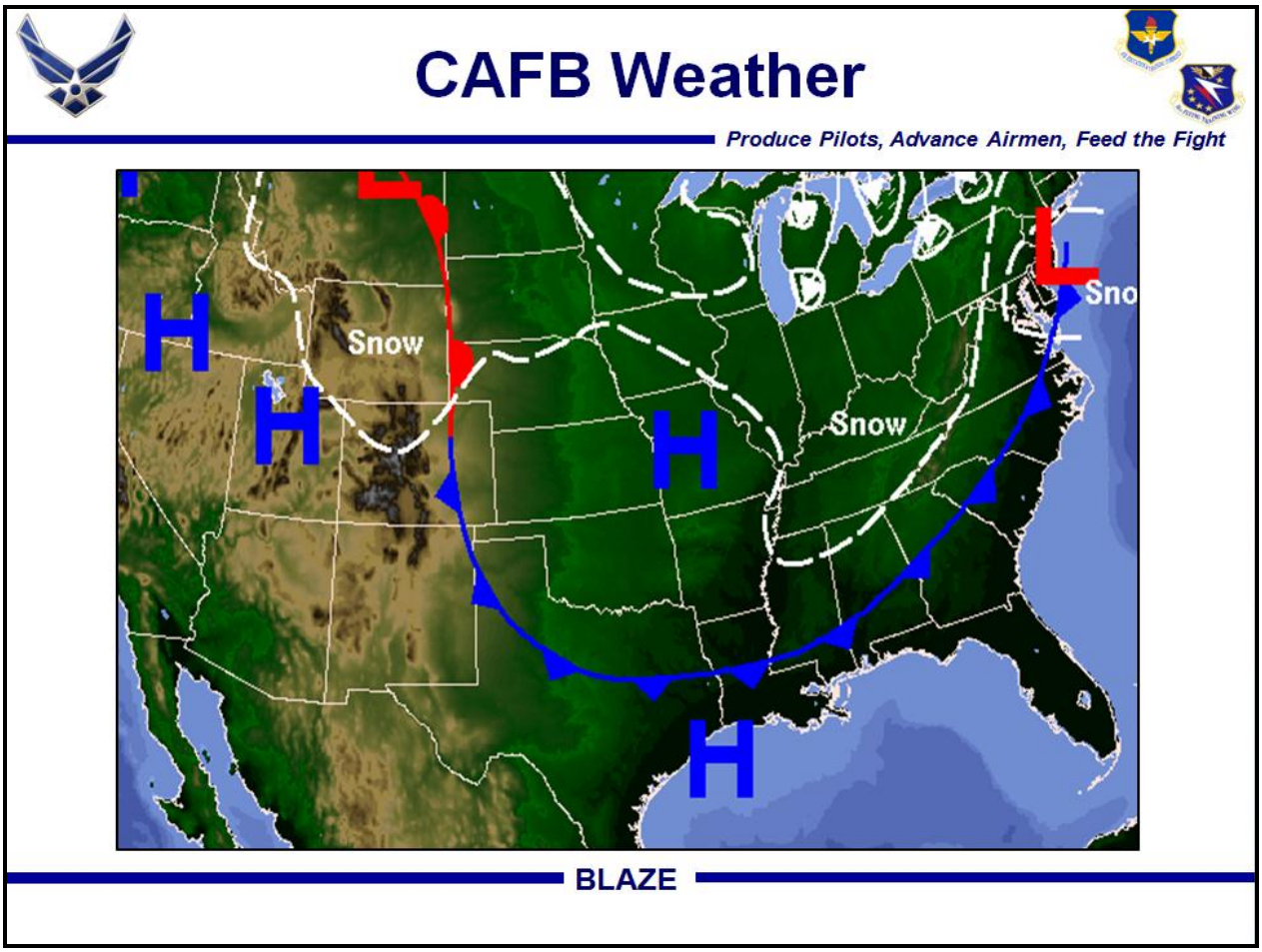


MWP TURBULENCE GRAPHIC.

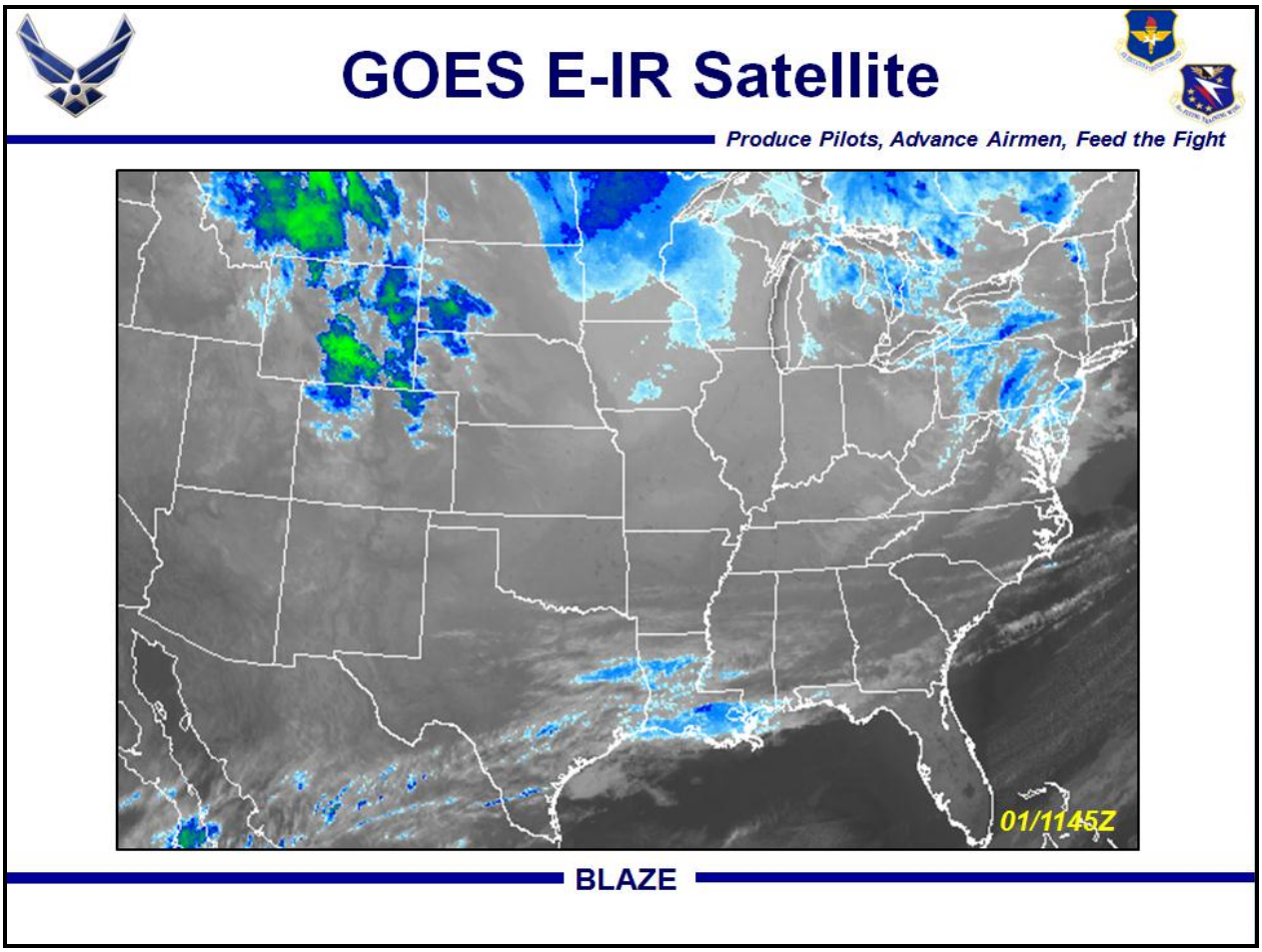




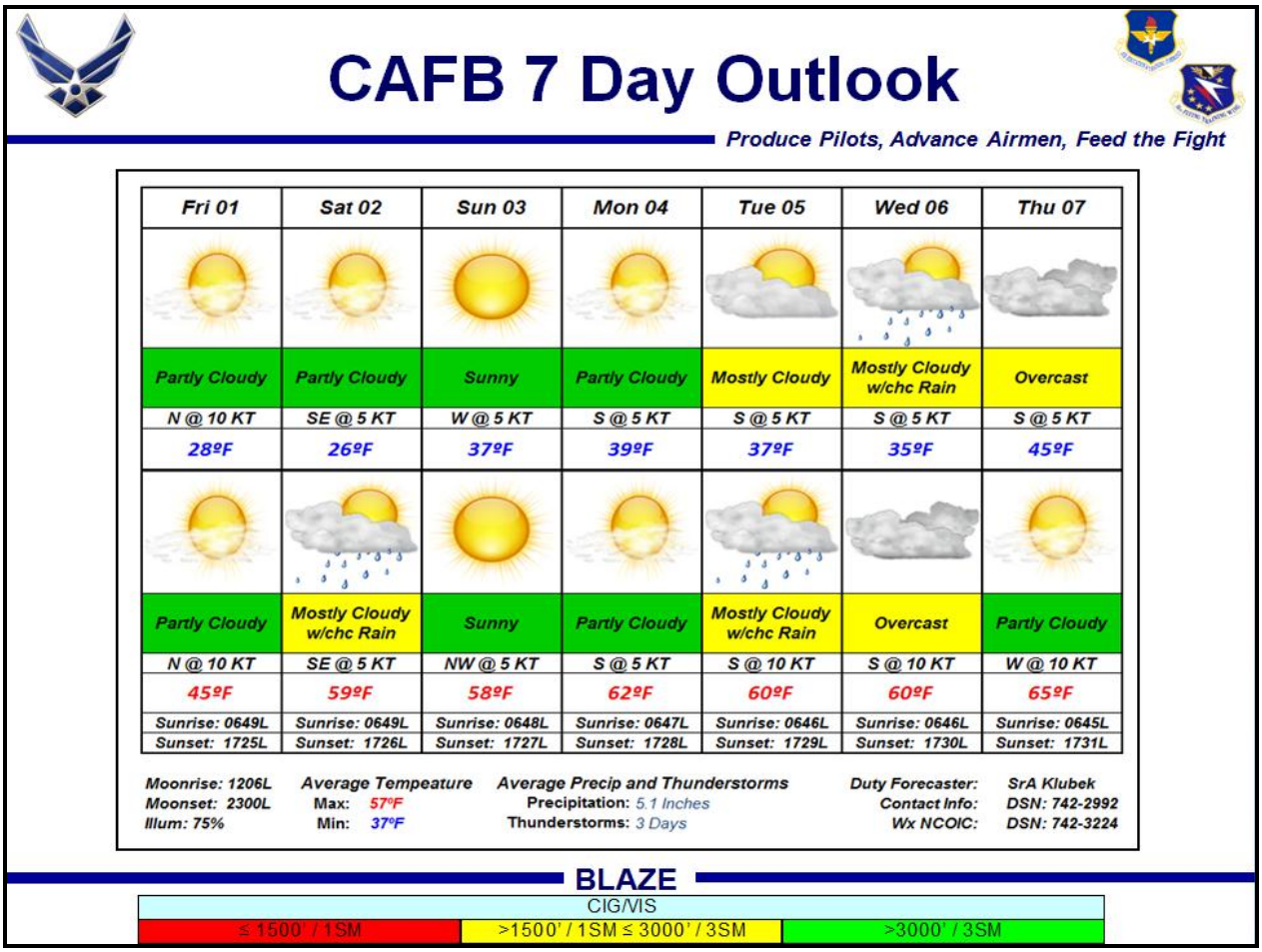
7-DAY OUTLOOK EXAMPLE GRAPHIC.



DAM SLIDE EXAMPLE GRAPHIC.



DAM SLIDE EXAMPLE GRAPHIC.



7-DAY OUTLOOK EXAMPLE GRAPHIC.